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ABSTRACT

While some attrition is normal, it has been high at the Federal service academies in recent years. The rates, although down from their peak levels, are still above normal at several academies. Those who drop out, while scoring slightly lower on some tests than those who stay, are still of high quality, and GAO believes some would make good military officers. Attrition also results in inefficient use of existing facilities and increases the cost of educating an academy graduate. Most students leave voluntarily, although 20 percent are separated by the academy, principally for academic reasons. An important factor in attrition is the student's low level of commitment. Another appears to be a basic incompatibility with the military environment. Attrition during the first few months is also related to what students perceive as an overemphasis on memorizing "professional and nonprofessional knowledge." Student perceptions of some aspects of the academic program are also associated with some attrition during the first and second years. There is evidence that some entering students are not aware of the limited academic majors available, and the technical emphasis of the curriculum. Identification with a particular military group is important in reducing attrition. Third-class (sophomore) attrition is apparently related to conflict between individual needs for growth and the institution's need for stability. (Editor/MSE)

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REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

Student Attrition At The Five Federal Service Academies

Departments of Defense, Commerce, and Transportation

While some attrition--i.e., students' leaving before graduation--is normal, student attrition at the five Federal service academies has been high in recent years. This report identifies the principal factors in student attrition at the academies. It also identifies alternatives to reduce attrition.

U S DEPARTMENT OF HEALTH
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HE008638

MARCH 5, 1976

FPCD-76-12

E R R A T A

To the recipients of the Comptroller General's report entitled "Student Attrition at the Five Federal Service Academies" (FPCD-76-12):

The chart on page 9 should appear on page 19.

The chart on page 19 should appear on page 9.

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-159219

To the President of the Senate and the
Speaker of the House of Representatives

Because of Congressional interest in the Federal service academies, we studied (1) their financial operations, (2) their military and academic programs, and (3) student attrition. This is our report on factors related to academy attrition. We made an extensive questionnaire survey of current and former academy students.

Accompanying this report are three enclosures detailing why academy students leave before graduating. The first enclosure provides a technical account of our methods and procedures, findings and interpretations. The second enclosure reviews studies on attrition and related issues made by, for, or about the academies in recent years. The third enclosure describes extensively the characteristics of students of the class of 1974 who entered and dropped out of the academies.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget; the Secretaries of Commerce, Defense, and Transportation; and the Secretaries of the Army, Navy, and Air Force.

Comptroller General
of the United States

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ABBREVIATIONS

DOD	Department of Defense
ETS	Educational Testing Service
GAO	General Accounting Office
MOM	Military Order of Merit
PAE	physical aptitude examination
SAT	Scholastic Aptitude Test

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

STUDENT ATTRITION AT THE FIVE FEDERAL SERVICE ACADEMIES
Departments of Defense, Commerce, and Transportation

D I G E S T

By most measures, students entering the Federal service academies are of high quality. As a group, they score well above the national average on standardized academic tests and their high school academic and athletic achievements are generally noteworthy. (See ch. 3.)

While some attrition--i.e., students' leaving before graduation--is normal, attrition has been high in recent years. The rates, although down from their peak levels, are still above normal at several academies. (See p. 9.)

Those who drop out of the academies, while tending to score slightly lower as a group on some tests of performance and potential than those who stay, are still, by normal standards, of high quality. Some, GAO believes, would make good military or maritime officers. (See ch. 3.)

Attrition also results in inefficient use of existing facilities and increases the cost of educating an academy graduate. (See pp. 23 and 24.)

Students leave the academies for many reasons. Most leave voluntarily, although about 20 percent of those who leave are separated by the academies--principally for academic reasons. Some students say they resigned to avoid dismissal; fewer accept the blame for involuntary separation.

The Superintendents of the academies and their top staffs, notably the Commandants, can greatly influence attrition and therefore the quality of academy graduates. (See pp. 13 to 18.)

An important factor in attrition, particularly in the first few months at the academy, is the students' low level of commitment. (See p. 42.)

--Some students seem to enter with little intention of graduating. They tend to drop out in the first few months.

--A greater percentage apparently are not committed to a military or maritime career when they enter. Low commitment is largely typical of students at this age; therefore, the academies should design their programs to develop commitment, not just test it. Yet the academies' own studies indicate that students become less committed to a service career the longer they are at the academies.

Another important factor in early attrition appears to be students' basic incompatability with the military environment. Some students cannot or will not adapt to the disciplined life at the academies and dislike the competition. (See p. 50.)

Attrition during the first few months is also related to what students perceive as an overemphasis on memorizing what is termed professional and nonprofessional knowledge. Professional knowledge includes such information as ranges of weapons, military ranks, and insignia; nonprofessional knowledge includes such information as sport scores and the titles of local movies. (See p. 54.)

Student perceptions of certain aspects of the academic program are also associated with some attrition during the fourth-class (freshman) and third-class (sophomore) years. (See p. 57.)

There is evidence that some entering students are not aware of the limited majors available at the academies and the technical emphasis in the curriculums. (See p. 59.)

Students' identification with a particular military group is an important factor in reducing attrition; that is, those who stay tend to identify with academy officers, other officers, or recent academy graduates. Those who drop out identify more with other dropouts or with peers in their hometown. (See p. 64.)

Evidence indicates that third-class attrition is related to a conflict between individual needs for growth and a service academy's needs for stability. (See p. 66.)

By design, the academy environment is highly competitive, a factor which apparently contributes to attrition. While the need for a competitive environment is not questioned, GAO is not convinced that the current amount of competition can be justified. (See p. 68.)

GAO identified several other factors which contribute to attrition, including:

--National economic conditions.

--The 2-year service obligation which students have who drop out in the last 2 years at their academy.

Most academy research studies on attrition have been concerned with the characteristics of students at the time of entry. (See enc. B.) GAO is concerned that the emphasis on selection as a method of reducing attrition can, in the long run, narrow the diversity of entering students and academy graduates.

The results of GAO's analysis of factors associated with attrition, including alternatives for reducing attrition, are contained primarily in chapter 4.

GAO's recommendations are contained on pages 84 to 86. These recommendations deal principally with (1) changing policies and practices to reduce attrition and (2) further research on attrition, with specific suggestions on areas which need priority attention. Agency officials said they have taken or are planning action on most of GAO's recommendations. (See p. 86.)

CHAPTER 1

INTRODUCTION

The Federal service academies provide career officers for the military and maritime services. In fiscal year 1974, graduates of the three military academies accounted for about 10 percent of the total starting-rank officers acquired by the military services.

Although generally not the principal source of officers, academy graduates are considered by the services to be among the more desirable new officers. Academy enrollees are initially selected because of high academic and and physical abilities and leadership potential and are given 4 years of intensive military and academic training. The cost of this training is high, ranging from $37,000 at the Merchant Marine Academy to $97,000 at the Air Force and Military Academies. (See p. 23 for a discussion of costs relating to attrition.)

Because of recent congressional interest in the academies, we studied (1) the financial operations of the academies, (2) the academies' military and academic programs, and (3) student attrition at the academies--that is, why students leave before graduating.

These three study areas are interrelated. The operations costs are affected by the rate and timing of attrition. Attrition increases the costs of producing a graduate, since the costs related to those who drop out are distributed to the cost per graduate. The longer a student delays leaving the academy, the more he has cost the academy. Finally, the extensive military training and academic programs of the academies add considerably to their costs, and aspects of these programs affect student attrition.

This report summarizes our study of student attrition. Pertinent details are contained in three supporting enclosures, as follows:

Enclosure	Contents
A	Technical Report on Survey of Factors Related to Attrition
B	Review of Studies on Academy Attrition and Related Issues
C	Characteristics of Academy Students

These enclosures contain substantial information; they detail the justification for our methods and procedures and the support for our findings and conclusions. Our objective in preparing these enclosures was to provide sufficient information to allow others to understand and verify our study. In addition, the data contained in the enclosures provides a wealth of information which DOD, the academies, and others should use in further research on attrition.

Our reports titled "Financial Operations of the Five Service Academies" (FPCD-75-117) and "Academic and Military Programs of the Five Service Academies" (FPCD-76-8) were submitted to the Congress on February 6, 1975, and October 31, 1975, respectively.

The five academies included in our study are (1) the Air Force Academy at Colorado Springs, Colorado, (2) the Coast Guard Academy at New London, Connecticut, (3) the Merchant Marine Academy at Kings Point, New York, (4) the Military Academy at West Point, New York, and (5) the Naval Academy at Annapolis, Maryland.

OUR OBJECTIVES

--What accounts for the current high levels of student attrition at the service academies?

--What can be done to reduce this attrition?

These are questions which have been of recent concern to the Congress and which we sought to answer.

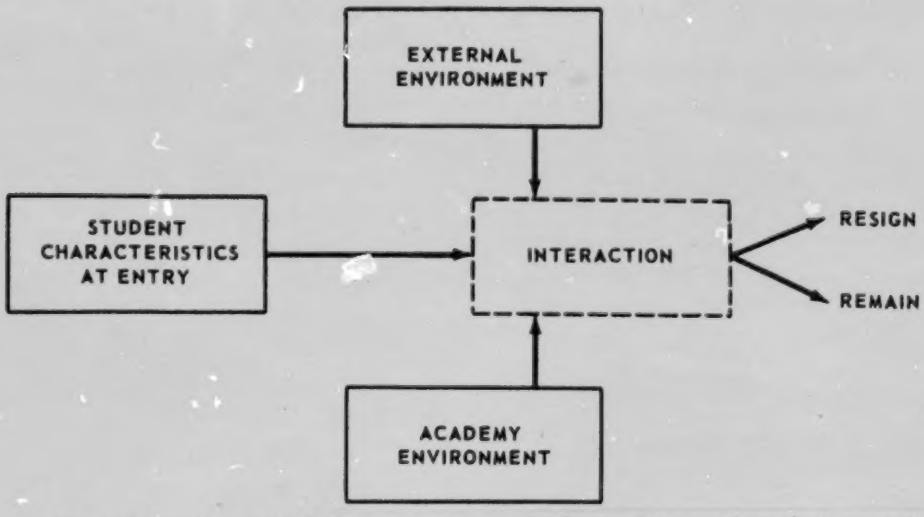
OUR APPROACH

Attrition is a complex phenomenon with interrelated causes and has been studied extensively by social science researchers. Some attrition is inevitable since selection of those who would make good officers is far from perfect. Attrition, therefore, can serve as a screening device for those students who do not measure up to the standards which the academies consider essential to the profession. However, how much attrition is necessary is not an easy question to answer; the factors contributing to attrition must be identified and evaluated in terms of their importance to the development of career officers.

To address the factors contributing to attrition, we adopted a conceptual model similar to those advocated by

other educational and psychological researchers. This model, shown below, provided the basic foundation for our study.

STUDENT ATTRITION MODEL



We viewed attrition as resulting from the interaction of three distinct influences: (1) the characteristics that students bring with them to the academy, such as abilities, potentials, values, motivations, and expectations, (2) the academy environment, such as the quality of the academic and military programs and the physical, psychological, and intellectual demands, and (3) the external environment which affects the students while they are at the academy, such as national economic conditions, adverse military publicity, or perceived graduate school opportunities.

Our survey of the relevant research on attrition, extensive discussions with current and former academy officials, and our review of academy files and records identified significant factors within each of these three areas that might contribute to attrition. We then collected data, performed analyses, and assessed the contributions of these factors to attrition. For example, we obtained information on the students' academic potential at the time they entered the academy (characteristic at entry) to assess the effect of this factor on whether students stayed or left the academy. Similarily, we collected data on the students' attitudes toward the academies' academic programs (academy environment) to see how important they were to attrition. In total, we collected or obtained data on over 500 items of this nature which could contribute to attrition.

We administered a questionnaire to all students (about 13,000) who were at the academies in May 1974, all those (about 7,300) who left the academies before graduation during the period July 1970 to May 1974, and all graduates (about 3,000) of the class of 1973. In addition, we obtained extensive data from academy records and from a questionnaire administered annually by the American Council on Education. A copy of our questionnaire is included as attachment IV to enclosure A; a list of the information obtained from the American Council on Education is included as attachment III to enclosure A; the data furnished us from academy records is included as attachment II to enclosure A.

To ascertain which items were, in fact, important in attrition, we performed a number of complex statistical analyses. Each academy was analyzed separately, and within each academy, analyses were made to identify attrition-related factors during (1) the summer preceding the fourth-class academic year, (2) the fourth-class academic year, and (3) the third-class year. These three time frames were chosen for analysis because about 85 percent of all attrition occurs during these periods and because we believed there were different reasons for attrition during each of these periods.

In addition to analyzing the data we obtained, we reviewed and summarized virtually all studies related to service academy attrition done by, for, or about the academies in recent years. (See enc. B.) We compared the findings of these studies with our analyses and our discussions with academy officials and students.

Factors identified as important to attrition were then evaluated in terms of alternatives by which attrition might be reduced.

Finally, we obtained information on changes in academy policies and practices, since our data was collected to reflect recent efforts by the academies to reduce attrition.

A complete and more technical discussion of our approach and the detailed results of our analyses are contained in enclosure A to this report.

STUDY LIMITATIONS

Despite the care and methodological rigor with which we made our study, we remain impressed with the complexity of the attrition phenomenon and its causes. Our findings explain only part of the phenomenon; much remains to be studied.

We also recognize that a correlational study (as ours was) does not establish clear cause and effect relationships and that surveying students' perceptions after the fact presents special problems of data interpretation. Alternative interpretations of our data exist. Wherever possible, we tested the validity of our interpretations. They appear to us to be the most reasonable, considering the results of our data analysis, the theoretical research of others, and the academies' own attrition studies.

We have surely not been able to recognize or test all possible alternative interpretations of the data. In particular, some interpretations seemed to require scientific experimentation or evaluation over time in order to identify cause and effect. Thus, for example, we cannot rule out the possibility that dropouts reported less satisfaction with certain aspects of life at the academies because these represent socially accepted reasons for leaving or the possibility that current students reported relatively more satisfaction for similar reasons.

Because alternative interpretations are always possible from survey data of the type we collected, our conclusions and recommendations have been stated cautiously and we encourage readers to examine the evidence presented in this report and the supporting enclosures to see the bases of our conclusions.

Many of the factors we identified as related to attrition deal with students' perceptions of the academy environment. This is appropriate since it is their perceptions, rather than reality, which affect their decisions to stay or to leave. However, these perceptions may or may not reflect the actual environment and these possibilities should be considered in implementing changes to reduce attrition. If the perceptions do not reflect the environment, then efforts to reduce attrition should be directed at correcting students' perceptions. On the other hand, if these perceptions are accurate, corrective action should be aimed at the environment. Our study did not attempt to verify students' perceptions. The academies need to study this matter further.

USE OF CONSULTANTS AND EXPERTS

Because of the multifaceted nature of the attrition phenomenon and the complex data analysis requirements of the study, we used consultants and experts extensively.

An advisory group composed of former academy superintendents and officials and officials of prestigious, nonmilitary institutions of higher learning met with us on several occasions to discuss the study.

Another working group made up of technical representatives from each of the academies, top social scientists from each of the military personnel-research organizations, and representatives of the Office of the Secretary of Defense was established to advise us on the more technical aspects of the study. Their input was invaluable in designing the questionnaire and in developing our plan for data analysis. Principal members of this group are identified in attachment I to enclosure A.

Finally, we contracted with the American Council on Education to assist us in the questionnaire design and data integration and to perform statistical tests of the extent of any bias due to nonresponse to our questionnaire. The council also established and maintained extensive controls to protect the confidentiality of the data collected. A copy of its report is shown as attachment VI to enclosure A.

These groups, while contributing importantly to the study, were advisory in nature. In the final analysis, we decided on the appropriate course of action after considering the views of these groups.

CHAPTER 2

ATTRITION TRENDS AND COSTS

WHAT IS ATTRITION?

Attrition, as it relates to our study, is the separation of a student from the academy before graduation. It results from action initiated either by the student (voluntary resignation) or from action initiated by the academies (involuntary separation). At all academies, most attrition is the result of resignation.

At the three military academies, the Secretary of the respective military Department approves all separations or resignations, and a student is not considered to have officially resigned or separated until the Secretary has approved the action. At the Coast Guard and Merchant Marine Academies, a student is officially separated upon approval of the Superintendent of the Academy. However, the academies normally record the student as attrited when he physically leaves the academy, and we have adopted this definition for our study.

Also, the nature of the service academies is sufficiently unique so that comparisons of academy attrition with attrition at civilian institutions may not be valid. For example:

--The 4-year program at the academies is uninterrupted. Unlike civilian institutions, any loss of students from an academy class contributes to that class' attrition.

--For many potential dropouts, the academies have procedures, including extensive counseling, to encourage the student to remain. Beyond voluntary counseling services, most civilian institutions make no such attempts.

--Some academy attrition is influenced by such phenomena as first summer training, the fourth-class system, and other stressful conditions. Civilian institutions have no comparable conditions, though pressures may develop from other sources, e.g., inability to finance college expenses, which the academy student avoids.

--For some academy students the social pressures against dropping out could be greater than that on students in civilian undergraduate schools.

--Finally, attrition at the academies can be easily defined as the percentage of an entering class that does not graduate with that class. Civilian institutions do not have a common definition for attrition.

Therefore, we did not compare attrition at the academies with civilian institutions. Attrition should be viewed in terms of the role of contributing factors in developing the type of graduate the services need.

TIME FRAMES

Throughout this report we discuss attrition and present statistics by certain time frames. A definition of these time frames follows:

First summer--This is an approximately 1-1/2 month period (about 3 weeks at the Merchant Marine Academy) of intensive physical and military training before the fourth-class academic year. It begins when the students arrive at the academy in July and ends about mid-August of that year.

Fourth-class academic year--This is the 10-month period from the end of the students' first-summer training in August to June of the following year. It represents the students' freshman year.

Fourth-class year--This represents the students' complete first year at the academy. It includes both the first-summer and the fourth-class-academic periods.

Third-class year--This represents the students' second or sophomore year at the academy, beginning July of their second year and ending the following June.

Second-class year--This represents the students' third or junior year at the academy, beginning in July of of their third year and ending the following June.

First-class year--This is the students' fourth or senior year at the academy beginning in July of their fourth year and ending in June of the following year with graduation.

WHY STUDY ATTRITION?

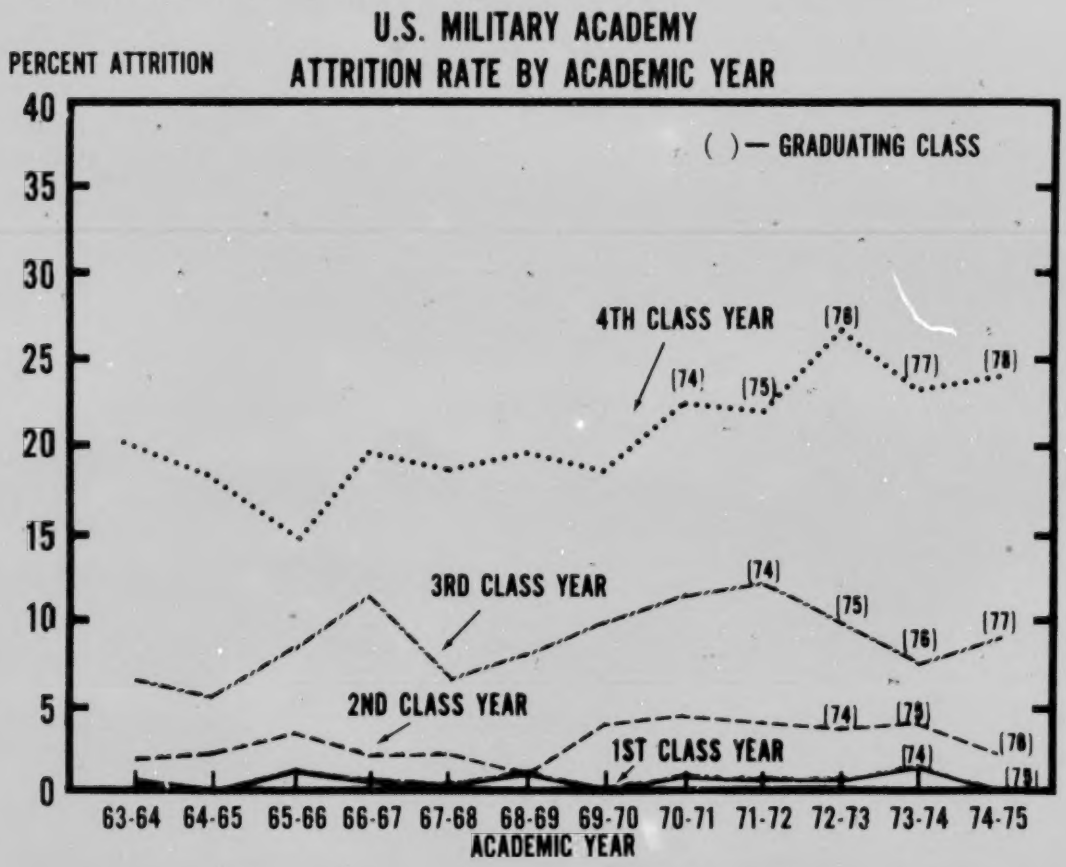
Perhaps the most important reasons to study the attrition phenomenon are its monetary and personal costs. The

Government incurs a rather sizable expense in bringing a student to an academy, feeding and housing him, providing him with an education, and, except for the Merchant Marine Academy, paying him about $4,000 per year. To the extent we can reduce attrition without affecting the quality of the graduate, we can increase the Government's return on its investment in the student. Further, attrition contributes to the inefficient use of facilities. Attrition also reduces the number of graduates and potential career military officers.

The personal costs of dropping out are, of course, harder to measure. However, for dropouts who feel they have failed for the first time to measure up to a standard of excellence, the costs must be high. (See pp. 68 to 72.)

ATTRITION TRENDS

In recent years, attrition rates for graduating classes at four of the five service academies have reached near-record levels, as shown in chart 1.



More specifically:

--The Air Force Academy graduating class of 1975 had a 46-percent attrition rate, the highest in its history.

--The Military Academy reached an 11-year high of 40 percent attrition for the graduating class of 1974, but dropped to 36 percent for the class of 1975.

--The Naval Academy graduating class of 1975 reached a 12-year high of 39-percent attrition.

--The Merchant Marine Academy reached an 11-year high of 48 percent for the graduating class of 1974, but dropped to 38 percent for the class of 1975.

--The Coast Guard Academy graduating class of 1975 had 46-percent attrition.

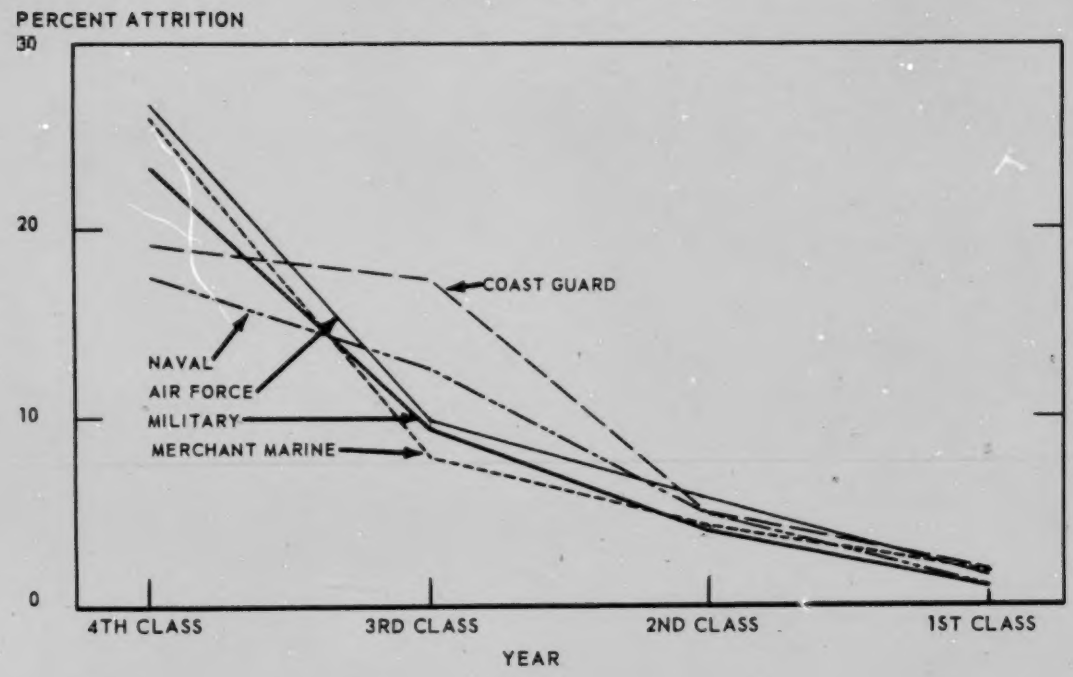
While these levels appear to indicate an increasing trend, it is important to note that attrition totals for a graduating class occur over a 4-year period. Since about 85 percent of this attrition occurs during the fourth- and third-class years (see chart 2), current graduating class figures reflect attrition which occurred primarily 3 and 4 years ago and consequently may not be representative of current attrition trends. Also, about one-third to one-half of fourth-class year attrition occurs during the first summer. Frequently academy attrition is judged based on current graduating-class rates. We want to emphasize the inappropriateness of these rates as indicators of current trends.

To assess current trends, it is necessary to examine attrition rates by academic years; therefore, a discussion of attrition rates for each academy by these periods follows.

Incidentally, chart 2 shows a difference among the academies as to when attrition occurs, viz., high third-class attrition at the Coast Guard Academy. In terms of the costs attributable to attrition, it is more economical to the academy for students, if they are going to leave eventually, to do so as early as possible.

CHART 2

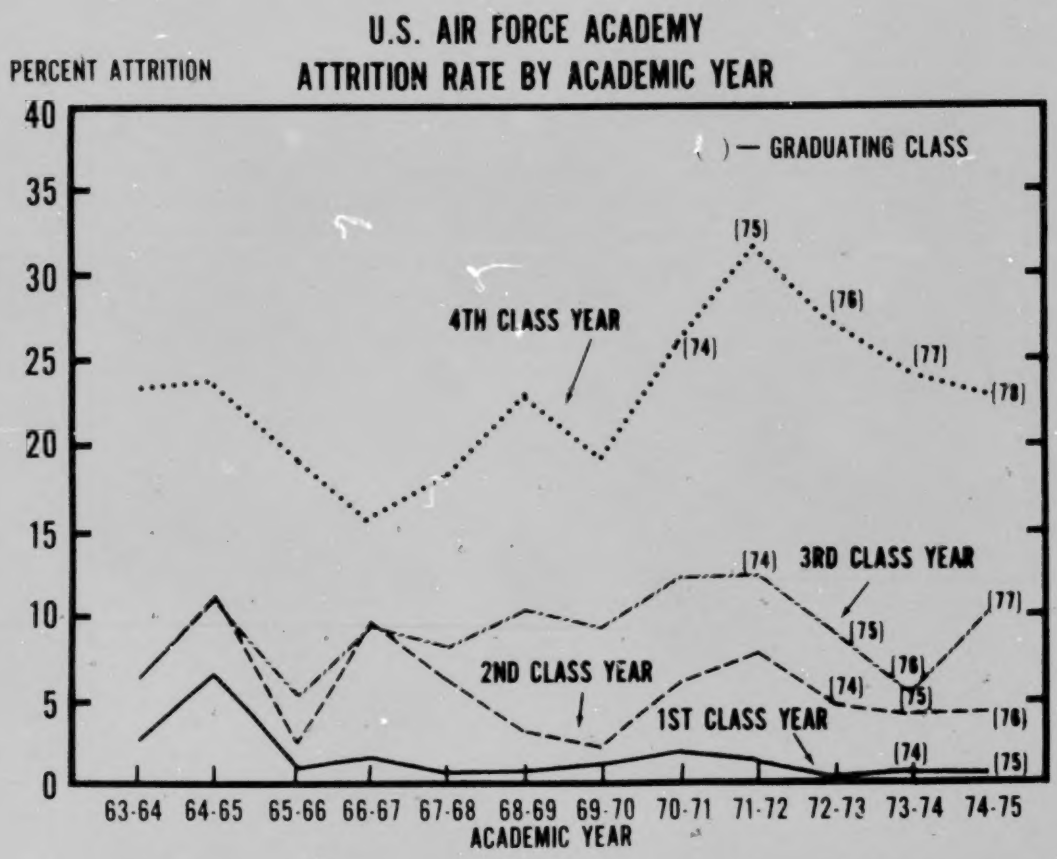
ATTRITION RATE BY CLASS YEAR
(AVERAGE OF LAST FIVE YEARS)



Air Force Academy

Chart 3 shows Air Force Academy attrition during the last 12 years for each class year.

CHART 3



This chart shows that the high attrition rates shown in chart 1 for the Air Force Academy classes which graduated in 1974 and 1975 principally reflect large increases in fourth-class year attrition during academic years 1970-71 (class of 1974) and 1971-72 (class of 1975).

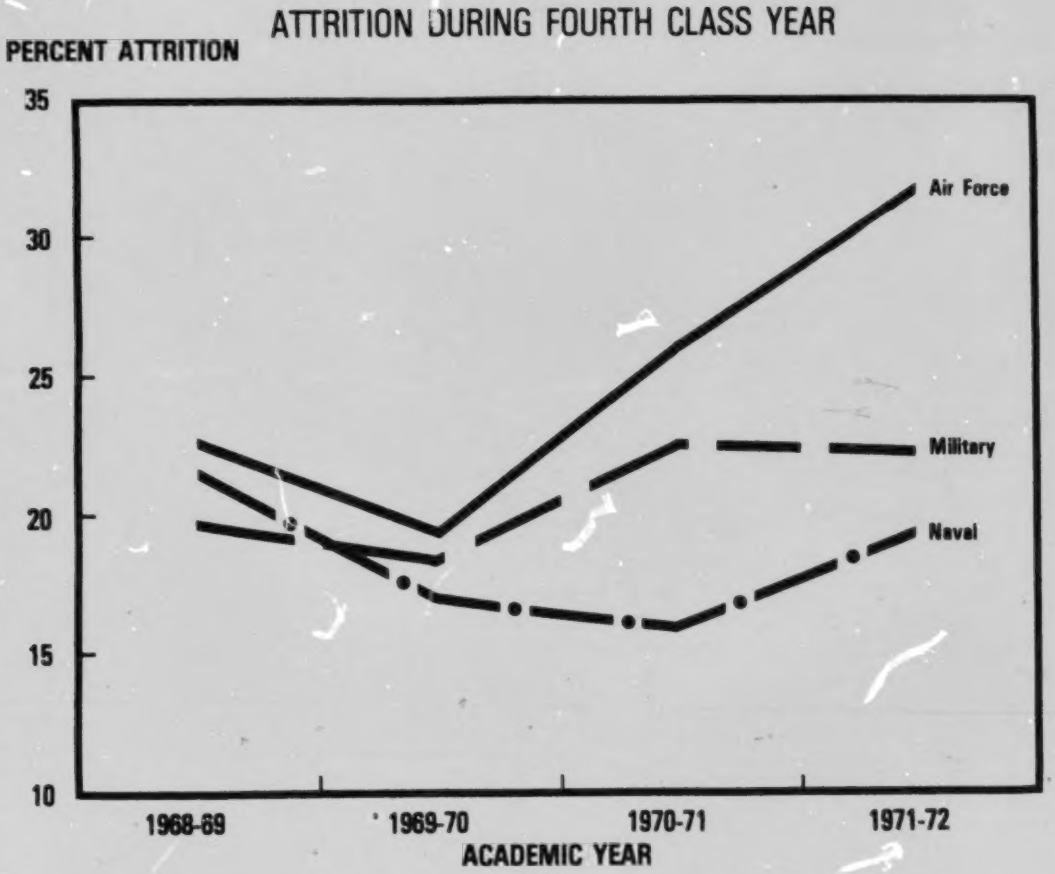
The last 3 academic years have witnessed, with the exception of the most recent third-class year, a general downtrend in attrition which should be reflected in reduced attrition rates for the classes graduating in the next few years. More specifically, the next class to graduate, the class of 1976, will show a marked decrease in attrition from 46 percent to about 38 percent, assuming no unusual occurrences. However, because of the rather substantial rise in

third-class attrition during the last academic year, overall attrition for the class graduating in 1977 will probably rise slightly to about 41 percent, barring any abnormal attrition during its second- and first-class years.

The increases in fourth-class attrition during academic years 1970-71 and 1971-72 were the primary causes of the congressional concern which prompted this study. In March 1973, Senator Birch Bayh, in a letter to the Comptroller General, expressed concern over unusually high attrition for the class of 1975 at the Air Force Academy. Subsequently, in May 1973, Senator William Proxmire raised similar concern in a letter to the Comptroller General regarding high and increasing student attrition rates for the class of 1974 at the Air Force Academy. Both Senators asked us to review the matter. The following discussion addresses these specific congressional concerns and attempts to identify the principal reason for the increase in Air Force Academy attrition during this 2-year period.

As shown in chart 1, both the Air Force Academy classes of 1974 and 1975 experienced record attrition rates. The class of 1974 graduated with the highest attrition in the Academy's 17-year history--44 percent--only to be surpassed by the class of 1975 with an attrition rate of 46 percent. Further, as was shown in chart 3, these record levels were predominately the result of increased attrition during the fourth-class year in academic years 1970-71 and 1971-72. Air Force Academy attrition rates during these 2 years were substantially above those experienced by the other two military academies during this same period, as shown in chart 4.

CHART 4



A further examination of fourth-class attrition during this period in terms of how the academies classify attrition (chart 5) shows that the Air Force Academy increase during academic year 1970-71 was attributable to increases in both voluntary resignation and involuntary separation for academic reasons. In the following academic year (1971-72), the further increase in Air Force Academy fourth-class attrition was due principally to voluntary resignations; academic attrition was slightly below the high level of the prior year.

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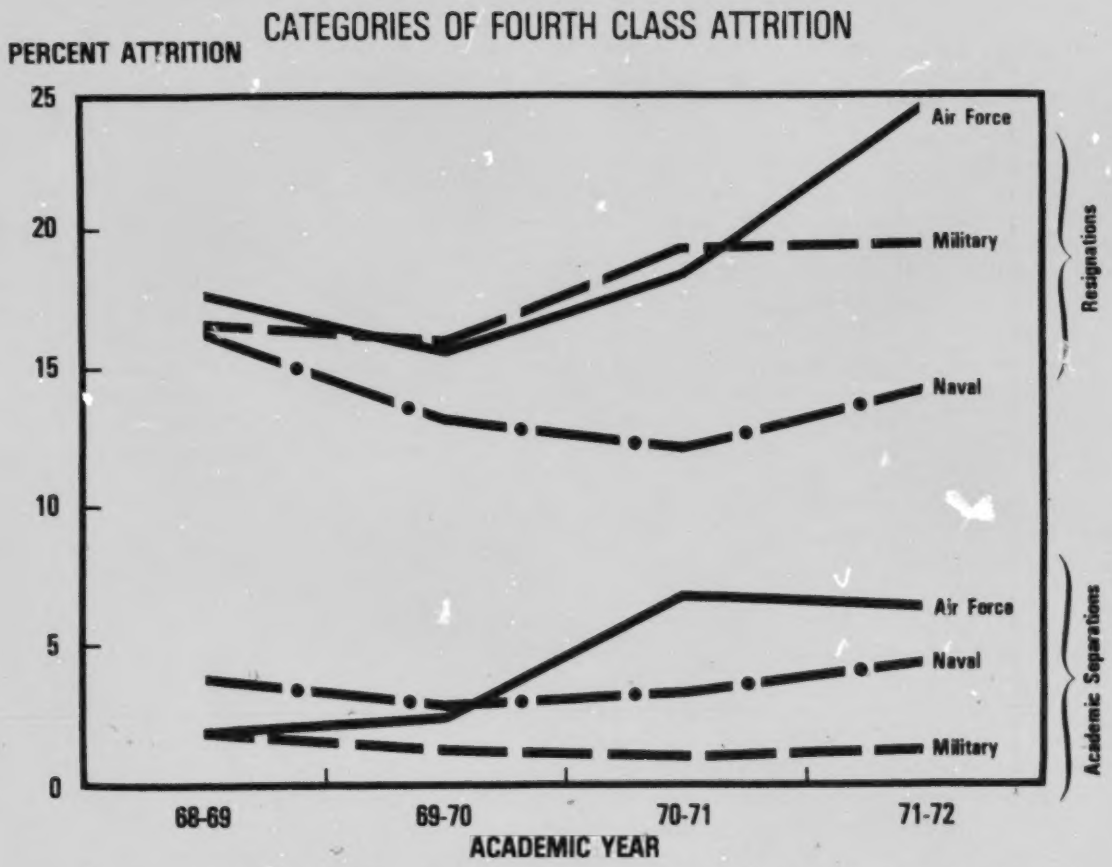
CHART 5



We believe that a change in Superintendents at the Air Force Academy in August 1970, accompanied by a major change in philosophy toward retention of students, was a principal reason for much of the increase in attrition during these 2 years.

In our discussion with Academy officials, we learned that the Superintendent who was at the Academy until August 1970 believed in making every effort to motivate and retain students. During his tour, a so-called hard-out policy was instituted which made voluntary resignations difficult before October of the students' first year. Even after October of the first year, we were told, resignation was a time-consuming process involving considerable counseling by psychiatrists, officers, and senior cadets, and some potential dropouts were thus discouraged. With regard to involuntary separation for academic reasons, efforts were made to help the student overcome his deficiencies. These efforts included reducing the cadet's academic load,

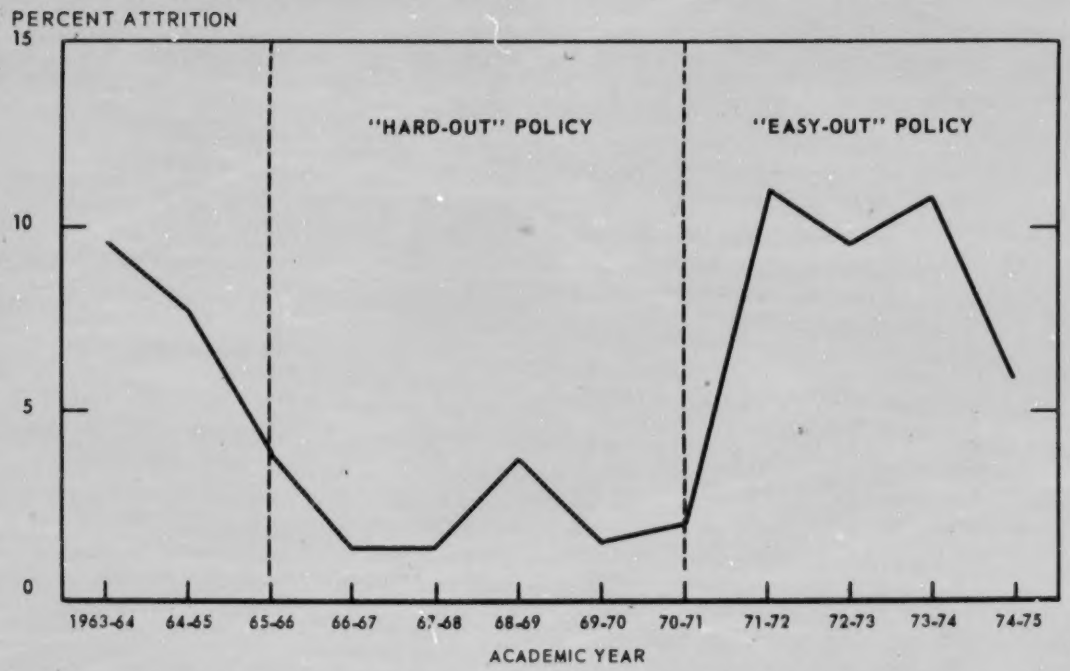
enrolling him in summer school to repeat failed courses and to make up courses, personalized tutoring by senior cadets and instructors, and graduating the student up to 6 months late but with his class. The Superintendent summed up his philosophy thus: "If an individual is good enough to get into the Academy, he is good enough to graduate if he wants to."

The Superintendent who began in August 1970 adopted a philosophy which was strikingly different. According to Academy officials, this Superintendent considered that if a student did not want to stay at the Academy, the Academy did not want the student; he was concerned more with the "quality" of the graduates than with the amount of attrition and he believed that too many students were graduating who would not make good military officers. An Academy official stated that this Superintendent was bothered by the performance of some graduates of the class of 1970, which had the lowest attrition rate in the Academy's history--28 percent--a number subsequently claimed to be conscientious objectors. As a result, we were told, the Superintendent increased the academic standards for retention (increasing separations) and made it easier for students to leave voluntarily (increasing resignations). The increase in academic separations, we were told, resulted from dismissing students who were having academic problems and whom the Academy found on the borderline or deficient in other attributes, such as leadership potential. Under the former Superintendent, these cadets would have been evaluated on their potential for overcoming their academic problems and many would have been retained; under the subsequent Superintendent, they were evaluated on their overall performance and potential, and this increased academic attrition.

With regard to voluntary resignations, we were told that the new Superintendent made it easier for students to resign voluntarily; this included elimination of the hard-out policy. The effect on first-summer attrition of eliminating the hard-out policy can be seen in chart 6.

CHART 6

AIR FORCE ACADEMY
FIRST SUMMER ATTRITION



According to Academy records, the hard-out policy was cancelled because the Academy felt that, while it retained some qualifed students who would otherwise have departed during the first few months but remained and overcame their problems, it also adversely affected some emotionally unstable fourth-classmen.

In summary, we cannot be certain as to the total effect that the change in Superintendents had on attrition, and the new Superintendent may well have been pressured from both within and outside the academy to undertake policy changes. Nevertheless, it appears on the surface that much of the attrition increase during academic years 1970-71 and 1971-72 was due to differences in attitudes of the two Superintendents. This deduction points out the important place that the Superintendent and his top staff, notably the Commandant, can have in influencing attrition, and it highlights the need to carefully consider the philosophy of potential candidates when filling top academy positions. We do not know whether one philosophy is better than another; we have not studied extensively the implications of each. We do, however, believe that the selection of the academies' top officers needs to be viewed in terms of their potential impact not only on attrition, but also on the quality of the graduates.

In this regard, DOD's Committee on Excellence in Education, in December 1973, established procedures for selecting senior executives for the service academies, which provide that:

"1. The Secretary of the Service concerned shall select three candidates for the designated position.

"2. Career briefs on each of the three candidates will be provided to the Chairman for review by each of the Committee members in turn. The candidates should not be rank ordered, although the nominating Service Secretary may elect to designate two of the three as being preferred.

"3. The Committee may elect to interview a candidate or candidates, but more normally will make its judgment on the basis of reviewing career briefs.

"4. The Committee will advise the Service Secretary concerned of its findings, and that Service Secretary will formally make the final selection."

In view of the influence that the Superintendent and his top staff can have on both attrition and the quality of graduates, the Secretary and the Committee on Excellence in Education should carefully consider the attitudes and philosophies of potential candidates, particularly their ability to use the academy environment to motivate young men and women to a career in the services. The selection of top executives--Superintendents and Commandants--for the service academies should be based primarily on ability to effectively train and motivate. While this ability is essential for faculty members, we believe it is equally important for executives, notwithstanding that their day-to-day contact with the students is less than that of faculty members and training officers.

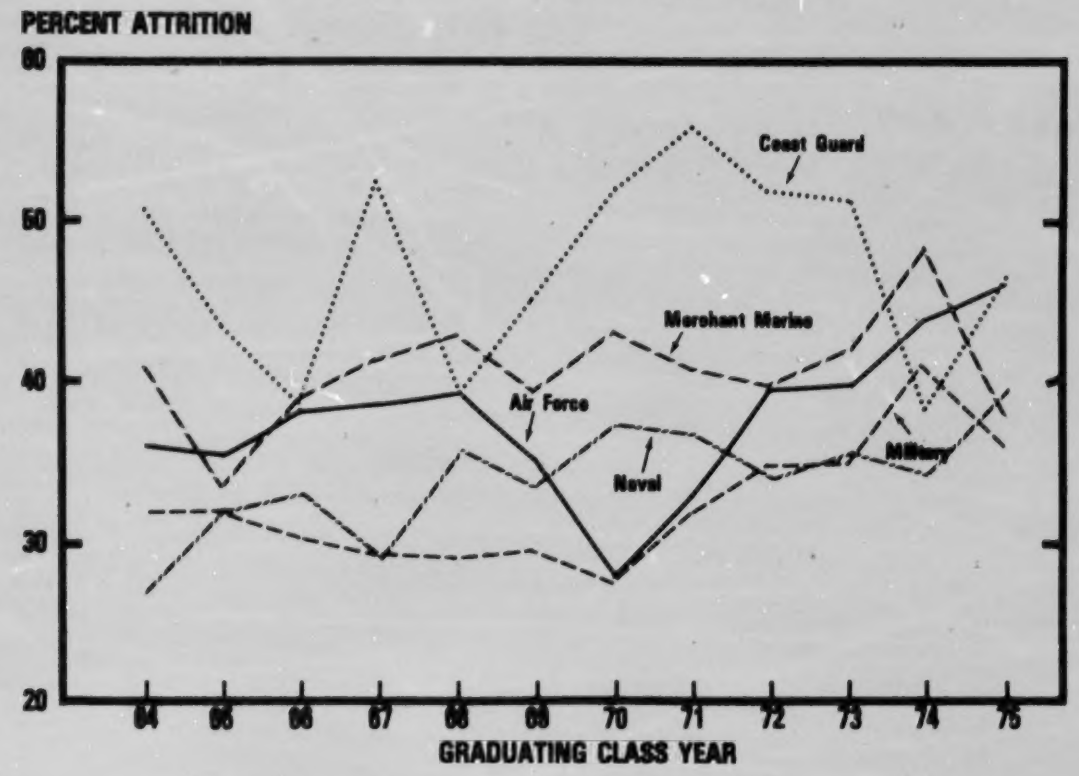
DOD officals agreed that the Commandants and Superintendents of the academies influence student attrition. They stated that the DOD Committee on Excellence in Education has "implemented a new DOD policy with supporting procedures to insure selection of senior executives attuned to the unique demands of the Academy environment."

Military Academy

Chart 7 shows the Military Academy attrition rates for each class year during the last 12 academic years.

CHART 7

FEDERAL SERVICE ACADEMIES
ATTRITION RATE BY GRADUATING CLASS YEAR



The high attrition rate for the class which graduated in 1974 (see chart 1) resulted primarily from the increase in fourth-class attrition 3 years earlier (1970-71). The slight decrease in attrition for the recently graduated class of 1975 was due primarily to the decrease in third-class attrition in academic year 1972-73.

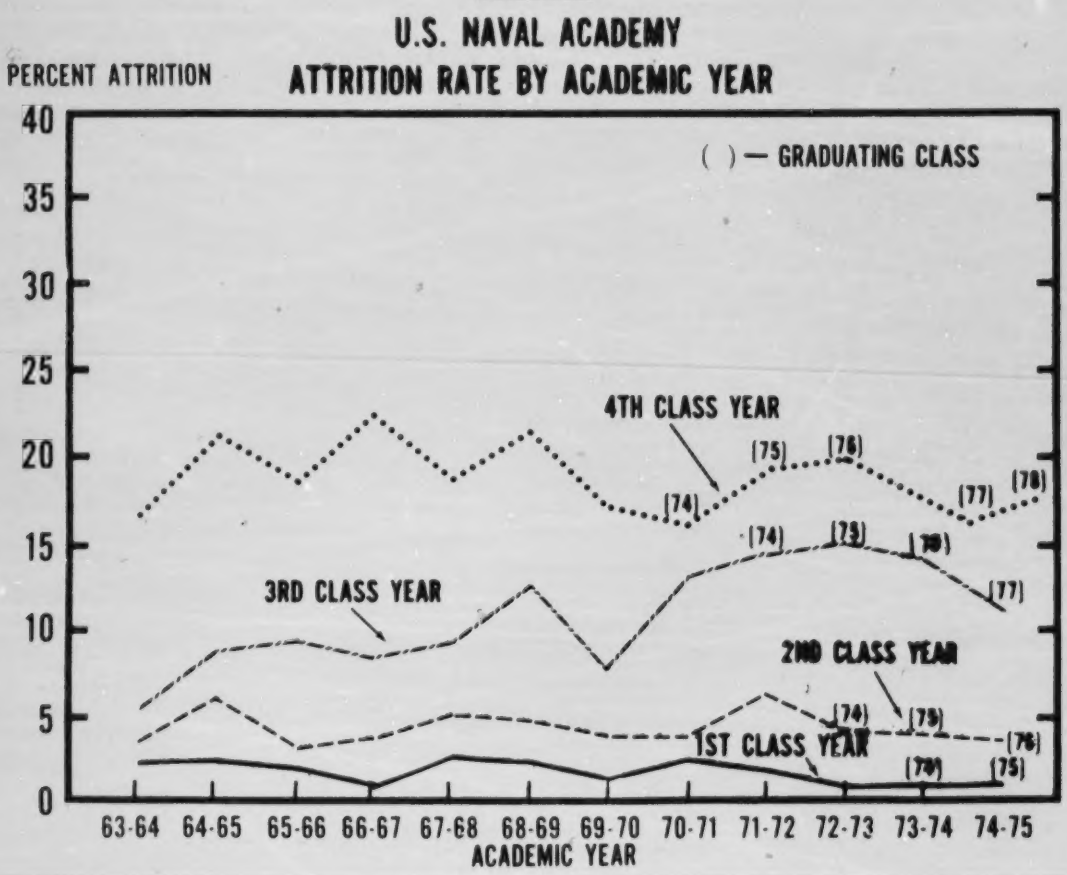
For the class of 1976, the attrition rate should increase to about 38 percent, the second highest in the last 13 years. The increase will result from the rise in fourth-class attrition during academic year 1972-73.

The class of 1977 should show a slight reduction in attrition to about 37 percent, barring any abnormal occurrences during its second- and first-class years. The reduction will occur due to the reduction in fourth-class attrition. We are, however, somewhat concerned with the rather steady rise over the years in fourth-class attrition; this trend should be watched closely.

Naval Academy

Chart 8 shows Naval Academy attrition trends for each class year during the last 12 academic years.

CHART 8



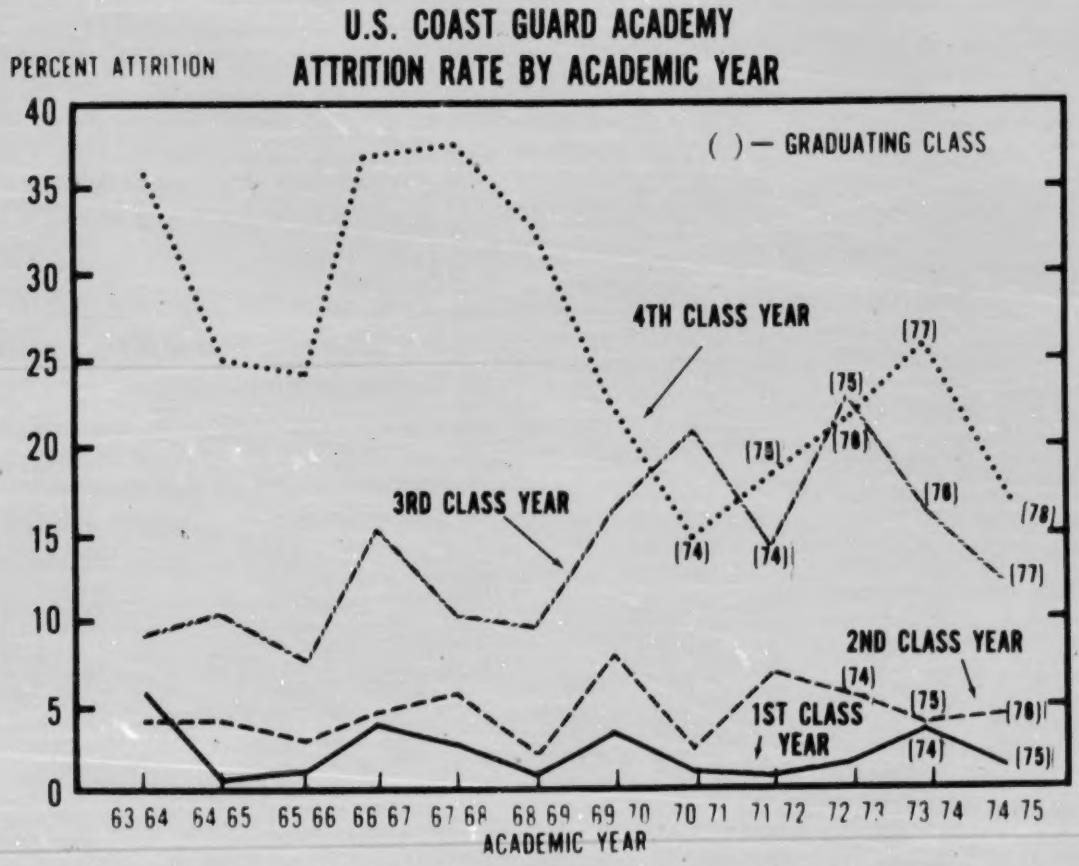
The 12-year-high attrition rate of 39 percent for the graduating class of 1975 (see chart 1) is a reflection of increases in both fourth-class attrition during 1971-72 and third-class attrition during 1972-73.

For the Naval Academy class of 1976, the attrition rate should decrease slightly to about 38 percent, primarily due to a small reduction in attrition during the third-class year. A further decrease should take place for the class of 1977 due to decreases in both fourth-class and third-class attrition.

Coast Guard Academy

Chart 9 shows the Coast Guard Academy attrition trends for each class year during the last 12 academic years.

CHART 9



The decrease in Coast Guard Academy attrition for the class of 1974 (see chart 1) reflects major decreases in both fourth-class and third-class attrition. The increase in attrition for the class of 1975 reflects significant increases in both fourth-class and third-class attrition.

The Coast Guard Academy, more than any of the other four academies, has had the greatest fluctuations in fourth- and third-class attrition.

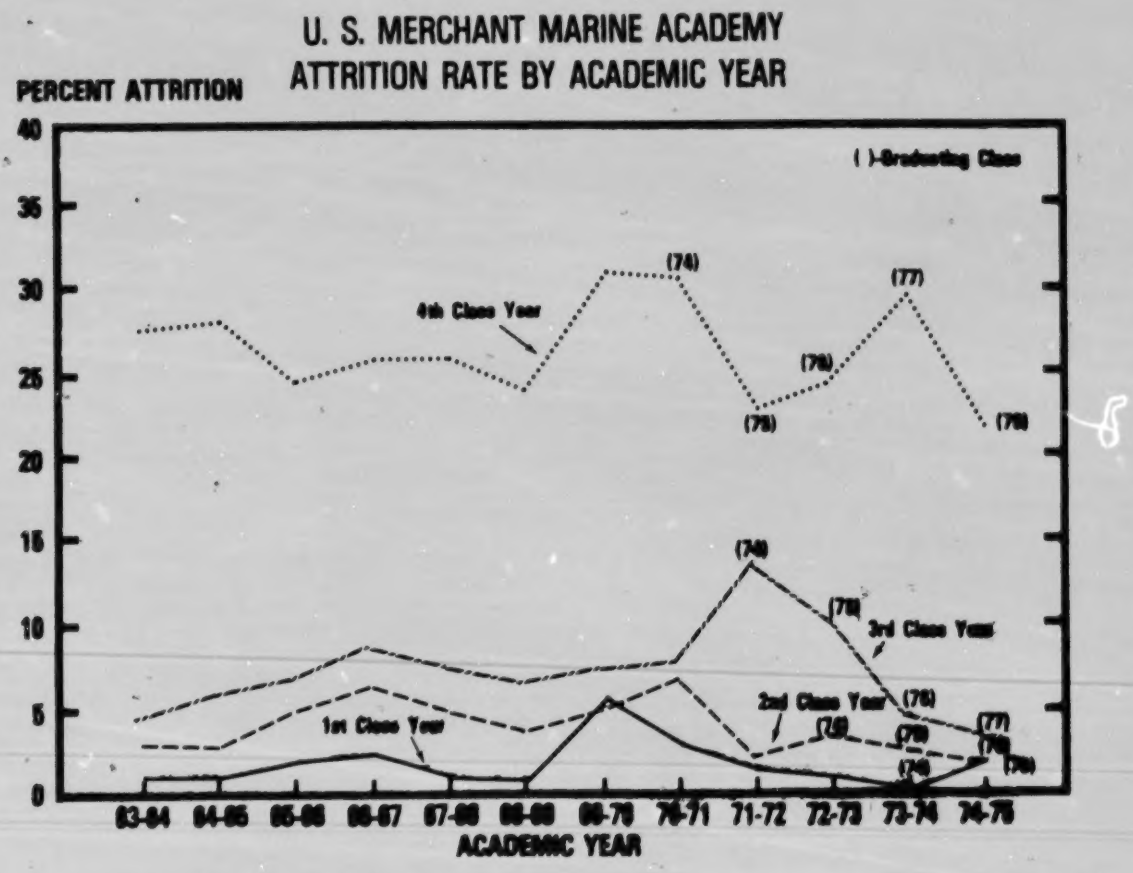
For the classes to graduate in 1976 and 1977, the attrition rate should decrease slightly to around 43 percent (from 46 percent), assuming no abnormal second- and first-class attrition. Both of these graduating classes experienced increases in fourth-class attrition with corresponding decreases in their third-class year.

In academic year 1974-75, attrition decreased particularly among the fourth class. However, this fourth-class reduction may be a reflection of a recent Academy policy which delays academic attrition for a minimum of 2 semesters.

Merchant Marine Academy

Chart 10 shows the Merchant Marine Academy attrition trends for each class year during the last 12 academic years.

CHART 10



The 11-year-high attrition rate of 48 percent for the graduating class of 1974 shown in chart 1 reflects high fourth-class and third-class attrition rates.

For the class of 1976, attrition should decrease to about 33 percent--the lowest rate since 1965. This decrease is attributable principally to a decline in third-class attrition.

Attrition for the class of 1977 should increase slightly to about 37 percent, due to the increase in fourth-class attrition during academic year 1973-74. However, the overall rate is still expected to be well below the 48 percent recorded for the class of 1974.

THE COST OF ATTRITION

While academy attrition is appropriately viewed in the context of its impact on the quantity and quality of graduates, attrition is not without its monetary costs, and a brief discussion of these costs adds a further dimension by which to evaluate the current levels of attrition.

For each student who leaves the academy, the Government incurs measurable costs for the period of time he was at the academy. The longer the student is at the academy before he drops out, the greater the costs which the academy will have incurred. In the final analysis, every student who drops out increases the cost of an academy graduate.

The following schedule shows, for the class graduating in 1974, (1) the cost per graduate, and (2) that portion which is attributable to the students who dropped out.

Academy	Cost per graduate	Attrition cost per graduate (note a)	Percent
Air Force	$97,000	$16,100	16.6
Military	97,200	12,800	13.2
Naval	70,700	9,200	13.0
Coast Guard	66,200	12,000	18.1
Merchant Marine	37,000	6,000	16.2

a/Includes both voluntary resignation and involuntary separation.

The costs assigned to those who dropped out represent, in effect, their share of the total cost of operations for the time they were at the academy. We do not mean that had these dropouts not come to the academy, the costs of operation would have been reduced by this amount. Some of the costs of operations allocated to the dropouts are relatively fixed and would have have been incurred regardless. Further, it is reasonable to assume that the miltary or the Government received some benefits from this investment. For example, within the first 6 months after leaving the academy, many dropouts state that they continued some form of military training, as shown in the following table:

Type of training	Academy				
	Air Force	Military	Naval	Coast Guard	Merchant Marine
	(percent)				
Entered active military service as an enlisted man	10	9	10	3	5
Joined the reserves or national guard	1	2	5	2	2
Entered a military officer training program	6	8	4	3	3
Total	17	19	19	8	10

Presumably the education and training these dropouts received while at the academy had some carry-over benefits.

In addition to increasing the cost per graduate, attrition also results in underuse of facitities. The physical plant and equipment at the academies are designed to accommodate a certain number of students. Attrition reduces the number of students to below this capacity level, decreasing the efficiency with which these facilities are utilized.

One way to increase efficiency is to increase the entering class to offset the attrition expected during the first summer. This alternative, of course, would be subject to legal strength limits, as well as the availability of qualified applicants.

CHAPTER 3

CHARACTERISTICS OF ACADEMY STUDENTS

During our study, the academies and our consultants emphasized the need to ascertain whether the academies are losing students who are potentially good career officers. If there were many such students, the need to reduce attrition would be more pronounced. If, on the other hand, dropouts represent a mostly inferior group, attrition would be serving the purpose of insuring that only those who meet the standards required by the services are graduated. One former Air Force Academy Superintendent stated that in his opinion, 20 percent of voluntary dropouts were good cadets and potentially good officers. To place some perspective on the types of students who drop out, we obtained data on the characteristics of entering students of the class of 1974 from the American Council on Education. In addition, the academies furnished us high school performance and academic achievement data for this class from their records.

We used the class of 1974, because when we collected the data this class had only about 3 months until graduation; therefore, the profile of the current students represents, by and large, the profile of the graduates of the class. Very few students dropped out during their last 3 months at the academy.

Our analyses showed that by most measures the students entering the service academies were a high-quality group. They significantly exceeded the national average on standardized tests (with one exception) and their high school academic and athletic achievements were noteworthy.

The students who dropped out of the academies tended to score lower than the current students on many of the measures we obtained. However, by most standards they were still a high quality group.

In this chapter, we will summarize the information which led us to the above conclusions. We will discuss the types of students who came to the academies and the types who dropped out during their first summer, their fourth-class academic year, and their third-class year. We will then compare those who dropped out with those who stayed, highlighting meaningful differences between the groups. Data for each academy will be summarized separately on the following dimensions:

Academic ability or potential as measured by

1. standardized tests of academic ability and achievement and

2. high school academic achievement levels.

--One aspect of academy performance as measured by the Military Order of Merit.

--Athletic ability.

--Overall political attitudes.

Pertinent details on each of these dimensions are contained in enclosure C to this report, together with additional information on the students' general attitudes.

Data on Merchant Marine Academy students was not available from the American Council on Education; therefore, our discussion of students at this Academy is limited to academic measures obtained from Academy records and other information collected from Academy publications. Also, because the number of Naval Academy first-summer dropouts for whom we had data was not sufficient for meaningful analysis, no comparisons for this group will be made.

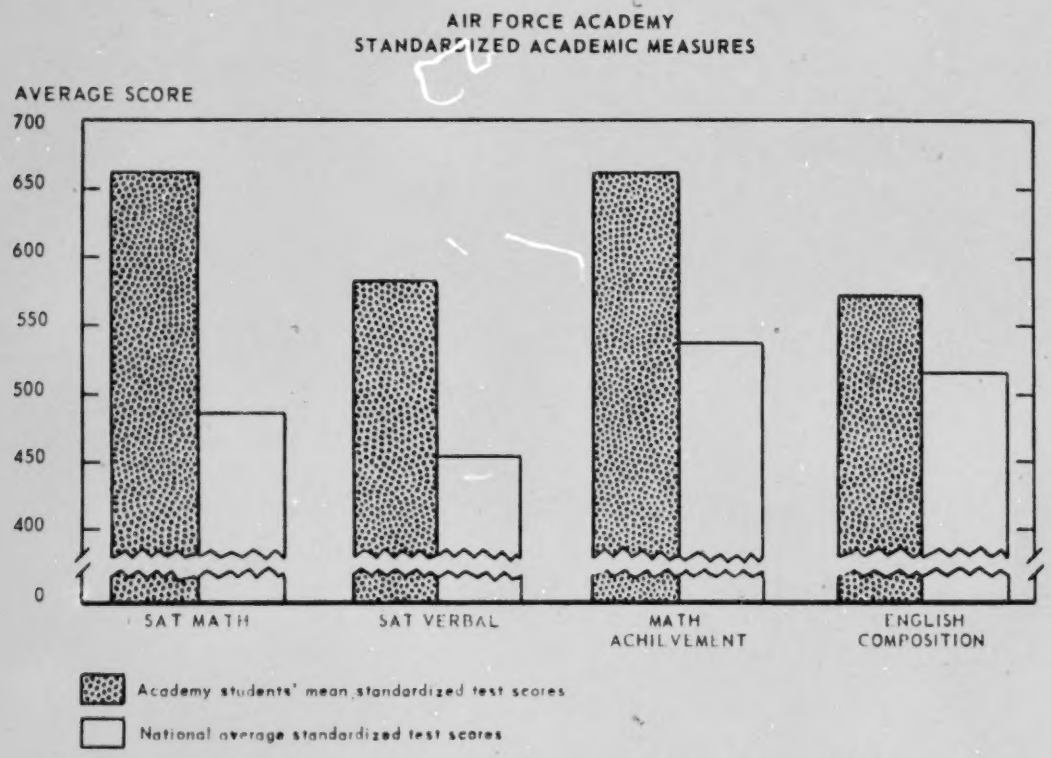
STANDARDIZED ACADEMIC MEASURES

Our data base included two sets of standardized academic test results, both prepared for the College Entrance Examination Board by the Educational Testing Service (ETS), and both commonly called college boards. One set consisted of scores on the Scholastic Aptitude Test (SAT) which has two parts, a test of verbal aptitude and a test of mathematical aptitude. The second set consisted of scores on two particular achievement tests, one in English composition and one in mathematics. These latter tests are designed to measure skills and knowledge learned in high school in these two areas. Both the SAT and the achievement tests are usually taken in the junior and senior years of high school by students who intend to enter college.

The Federal service academies intentionally select students who tend to score considerably higher than the national average on standardized academic tests. Their higher math scores as compared to verbal scores is consistent with the engineering curriculum of the academies, which is heavily math oriented. A discussion of the standardized academic measures by academy follows.

Air Force Academy

The following chart compares the Air Force Academy class of 1974 with the national average.



For each measure, Academy students, on the average, greatly exceed the national mean. This is due largely to Air Force Academy standards which, for this class, required a combined minimum verbal score of 950 and combined math score of 1050 for entry.

Analysis of standardized test scores by time of attrition showed a statistically significant 1/ difference between dropouts and current students during certain times. During the first summer, standardized test scores were not significantly different between dropouts and current students; this is probably because little emphasis is placed on academics during this military orientation period. During the fourth-class academic year, however, a statistically signficant

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1/By statistically significant, we mean that there is a 95 percent probability that the relationship was not due to chance.

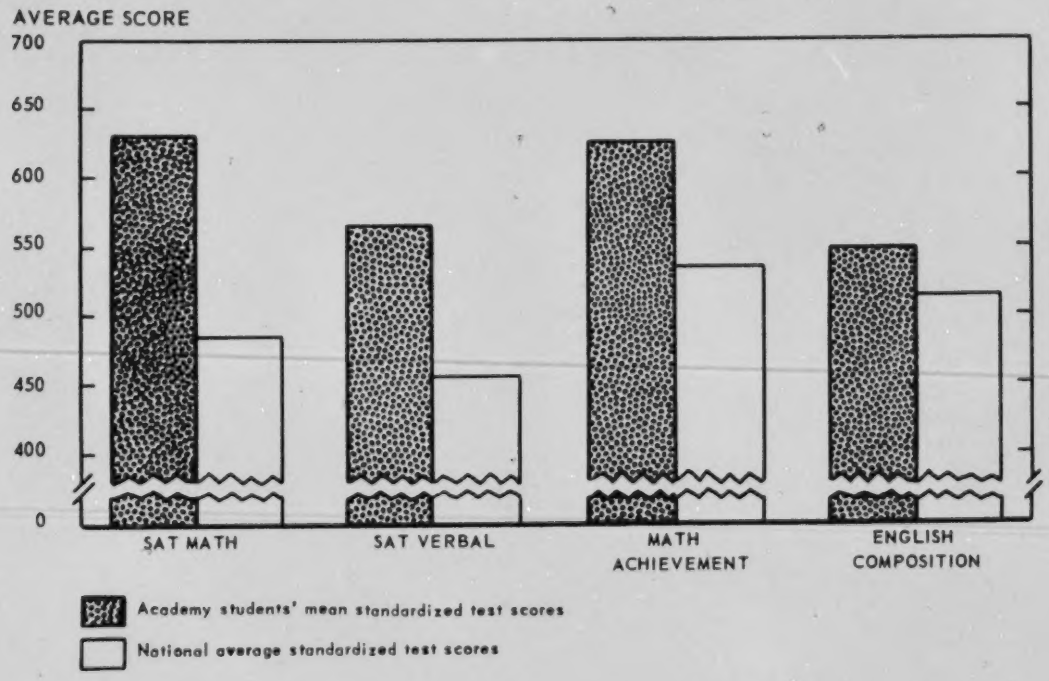
difference between dropouts and current students exists in standardized math scores. Twenty-four percent of the dropouts had SAT math scores of less than 600 as compared to only 15 percent of the current students. On the math achievement test, 27 percent of the dropouts scored less than 600, compared to 19 percent of the current students. In the fourth-class academic year, the Academy lost students who tended to have less math knowledge and potential as measured by these tests.

During the third-class year, the average standardized test scores are slightly higher for dropouts than current students; however, the difference is statistically significant for only the verbal test scores.

Military Academy

The entering students of the Miltary Academy class of 1974 also scored much higher on standardized academic tests than the national average. The following chart compares the students' standardized test scores with the national average.

MILITARY ACADEMY
STANDARDIZED ACADEMIC MEASURES



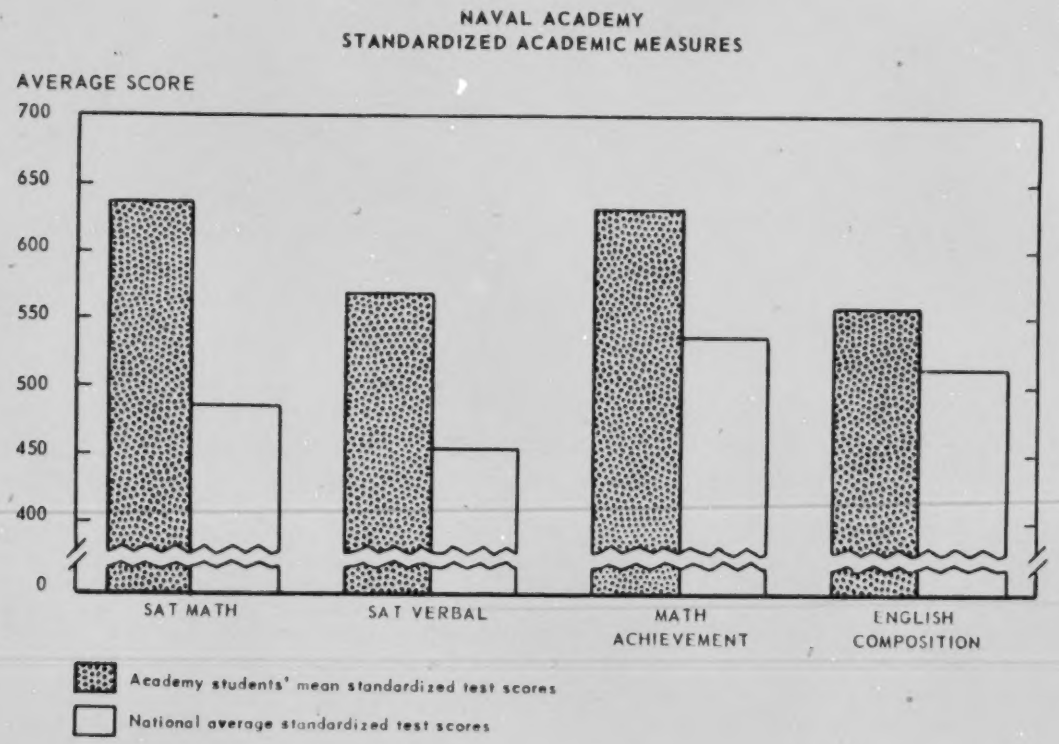
During the first summer, only the SAT verbal scores varied significantly between dropouts and current students, with the current students having the higher average score.

Analysis of the fourth-class academic year revealed statistically significant differences between dropouts and current students for the SAT math, math achievement, and English composition scores. On all these tests, the current students had higher scores as a group.

In the third-class year, statistically significant differences existed for SAT verbal and math achievement scores, with the current students averaging higher.

Naval Academy

The Naval Academy accepted students whose average standardized test scores were much higher than the national average, as indicated in the following chart.

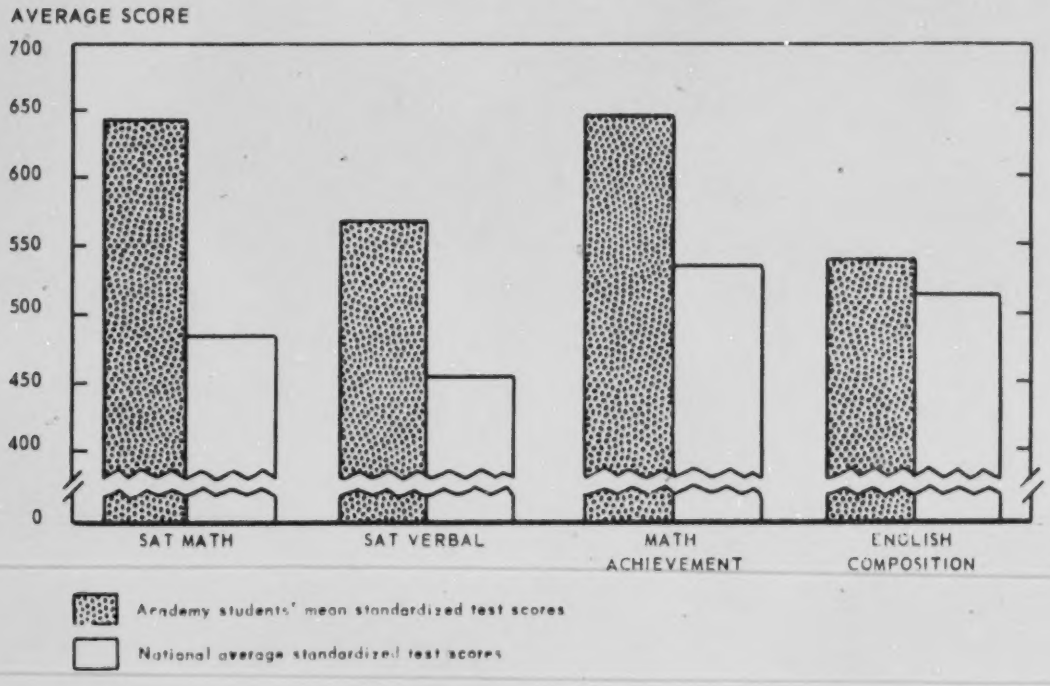


Analysis of scores by time of attrition indicated a statistically significant difference between dropouts and current students during the fourth-class-academic and third-class years for the SAT math, math achievement, and English composition scores. The dropouts, as a group, scored lower on these three measures.

Coast Guard Academy

The Coast Guard Academy accepted students whose average standardized academic test scores were much higher than the national average in all instances, with the SAT math scores showing the greatest difference. The following chart compares Coast Guard Academy students' standardized test scores with the national average.

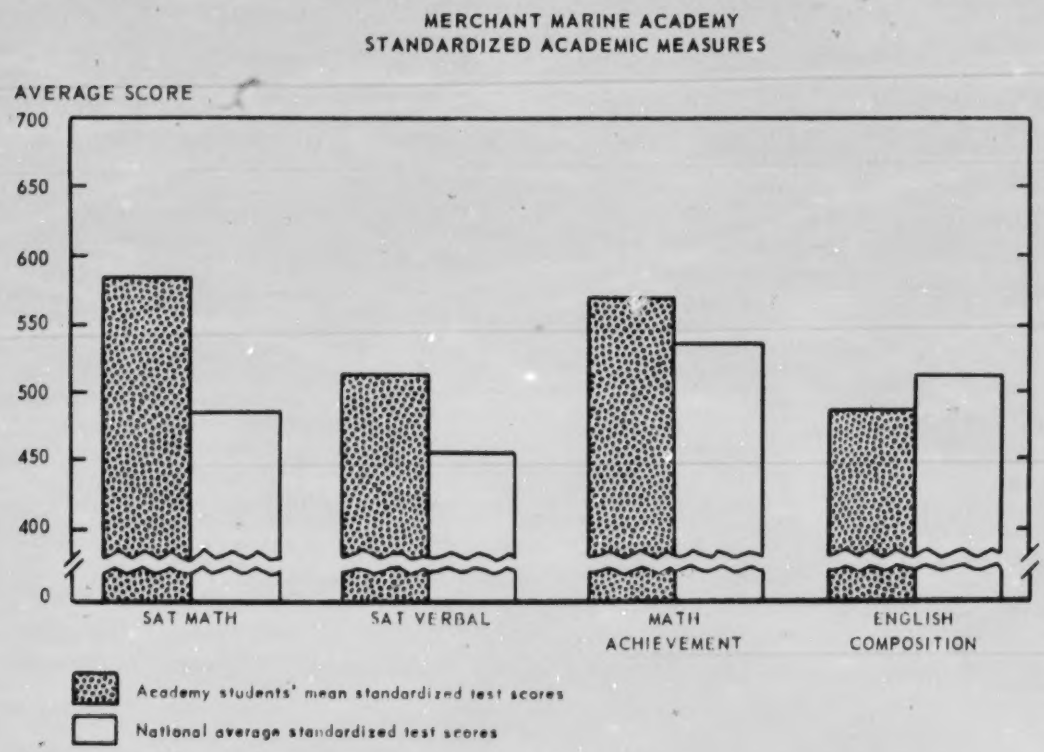
COAST GUARD ACADEMY
STANDARDIZED ACADEMIC MEASURES



Analysis of scores by time of attrition indicated a statistically significant difference only in the third-class year, with the dropouts, as a group, scoring lower on the math achievement test.

Merchant Marine Academy

The following chart compares Merchant Marine Academy students' standardized test scores with the national average.



The Academy accepted students who averaged higher than the national norm on all but the English composition test. We did not analyze data on standardized test scores between dropouts and current students.

HIGH SCHOOL ACHIEVEMENT

Our measures of high school achievement are based on (1) high school rank as reported by the student, (2) high school rank as reported to the academy and converted to a standardized score, (3) high school grades as reported by the student, and (4) high school scholastic honor society membership as reported by the student. Analysis of these four measures indicates a statistically significant difference at all academies between dropouts and current students for most time frames, with the dropouts tending to be lower in high school achievement.

Air Force Academy

Student-reported high school rank

Ninety percent of incoming students reported that they were in the top quarter of their high school graduating class; 9 percent, in the second quarter; and 1 percent, in the third and fourth quarters combined.

Analysis by time of attrition shows a statistically significant difference between current students and dropouts during all periods. The current students tended to have higher high school ranks than the dropouts. This is especially true in the fourth-class academic year and the third-class year. In the fourth-class academic year, 84 percent of the dropouts were in the top quarter of their high school graduating class versus 94 percent of the current students. This pattern is repeated in the third-class year, when 87 percent of the dropouts versus 94 percent of the current students were in the top quarter of their class.

High school rank as reported to the Academy

The Academy converts the student's high school rank into a standardized score ranging from 200 to 800, using a system devised by the Educational Testing Service. In a high school where students are not ranked, the Academy derives a standard high school rank from the student's high school grade point average and class size.

The largest statistically significant difference between dropouts and current students occurs in the fourth-class academic year, when approximately 35 percent of the dropouts scored 500 or less compared to only about 19 percent of the current students. A statistically significant difference also exists in the third-class year with the dropouts, as a group, scoring lower than the current students. These results are consistent with the high school rank information reported by the students.

High school grades

Forty-six percent of incoming students reported average high school grades of A; 51 percent, B; and 3 percent, C. Analysis by time of attrition shows a statistically significant difference between current students and dropouts during the fourth-class academic year and the third-class year, with the dropouts, as a group, having lower average high school grades.

High school scholastic honor society membership

Sixty-six percent of entering students reported being members of high school scholastic honor societies. During all time frames, nonmembers dropped out at a higher rate than members. However, a statistically significant difference occurs during only the fourth-class academic year.

Military Academy

Student-reported high school rank

Eighty-five percent of incoming Academy students reported they were in the top quarter of their high school graduating class; 12 percent, in the second quarter; and 3 percent, in the third and fourth quarters combined. Analysis by time of attrition shows a statistically significant difference between current students and dropouts for only the third-class year, when the Academy lost more students in the lower quarters.

High school rank as reported to the Academy

Adequate data was not available to analyze dropouts and current students in terms of converted high school ranking.

High school grades

Forty-two percent of entering Academy students reported average high school grades of A; 53 percent, B; 5 percent, C; one-tenth of 1 percent D.

Analysis by time of attrition shows a statistically significant difference only during the fourth-class academic year, when the Academy lost students who tended to have lower average grades.

High school scholastic honor society membership

Sixty-one percent of entering Military Academy students reported membership in a scholastic honor society. A statistically significant difference between current students and dropouts exists during the fourth-class-academic and third-class years; those students who had not gained membership into a high school scholastic honor society dropped out at a greater rate.

Naval Academy

Student-reported high school rank

Eighty-two percent of entering students reported being in the top quarter of their high school class, with 15 percent in the second quarter, and 3 percent in the third and fourth quarters combined.

Analysis by time of attrition shows a statistically significant difference between dropouts and current students only during the third-class year, when the Naval Academy lost those students who, on the average, ranked lower in high school.

High school rank as reported to the Academy

Analysis of the converted high school rank shows a statistically significant difference between current students and dropouts during the fourth-class-academic and third-class years. For example, during the fourth-class academic year, only 14 percent of the dropouts had a high school rank score greater than 600, compared with 26 percent of the current students. On the whole, the Academy lost those students who had lower high school ranks.

High school grades

Thirty-seven percent of Naval Academy entering students reported an average high school grade of A, 59 percent reported a B average, and 3 percent reported a C average.

Analysis by time of attrition shows a statistically significant difference between dropouts and current students during the fourth-class-academic and third-class years. For example, 20 percent of the fourth-class academic year dropouts had average high school grades of A compared with 40 percent of the current students. The Naval Academy lost those students who, as a group, had a lower high school average.

High school scholastic honor society membership

Fifty-seven percent of entering students reported being members of high school scholastic honor societies.

During the fourth-class-academic and third-class years, significantly fewer dropouts than current students held membership in a high school scholastic honor society, indicating that those students who gained membership into a high school scholastic honor society had a greater probability of graduating from the Academy.

Coast Guard Academy

Student-reported high school rank

Ninety percent of entering Academy students reported being in the top quarter of their high school graduating class; 9 percent, in the second quarter; and 1 percent, in the third quarter.

Analysis by time of attrition shows a significant difference between current students and dropouts only during the third-class year, with the dropouts having lower reported high school rank.

Converted high school rank as reported to the Academy

The Coast Guard Academy did not use the ETS standard conversion formula for high school rank, but created its own conversion table with standardized scores ranging from 425 to 800.

Analysis of the Academy's converted high school rank shows a statistically significant difference between current students and dropouts during the fourth-class-academic and third-class years. The current students had a higher converted rank.

High school grades

Thirty-three percent of entering students reported an average high school grade of A, 65 percent reported a B average, and 2 percent reported a C average.

Analysis by time of attrition shows that the current students had significantly higher average high school grades than fourth-class-academic-year or third-class-year dropouts.

High school scholastic honor society membership

Fifty-five percent of entering students reported that they were members of a high school scholastic honor society. Analysis by time of attrition shows a statistically significant difference between current students and dropouts during the fourth-class-academic and third-class years. With the exception of the first summer, less than half the dropouts were members of a high school scholastic honor society, whereas almost two-thirds of the current students were members. This indicates that students who earned membership into a high school scholastic honor society had a greater probability of graduating from the Academy.

Merchant Marine Academy

Due to limited information on the Merchant Marine Academy only high school rankings as reported by the Academy were analyzed. These show that approximately 80 percent of the entering students were academically in the top half of their high school graduating class and half were in the top quarter of their high school class.

MILITARY ORDER OF MERIT

The military academies assign a rank to students known as the Military Order of Merit (MOM). This measure is generally based upon a student's academic performance in military studies, his leadership potential and performance reports, and his accumulated demerits. At the Military Academy it includes his physical education grades, but not his demerits. We were able to obtain meaningful data on this measure from only the Air Force and Military Academies.

Analysis of dropouts for each time frame shows that at both academies the students who left tended to have lower MOM ranks. However, there were students who left both academies whom the academies would consider highly desirable in terms of this measure. For example, about 14 percent of Air Force and 16 percent of Military Academy third-class year dropouts were in the top quarter of their class in terms of their MOM.

ATHLETIC ABILITY

Three variables comprise our measure of athletic ability. The first variable was obtained from students' responses to a question on the American Council on Education survey concerning whether they earned high school varsity letters. The other two components (not available for the Coast Guard and Merchant Marine Academies) are indexes developed by the academies--athletic activity score and physical aptitude examination score.

The athletic activity score is based upon athletic participation in a high school or community athletic program. Emphasis is placed on team contact sports like football, basketball, or hockey as opposed to individual sports like tennis, track, or cross country. Added weight is also given for certain sports accomplishments, such as team captain, state records, and all-conference teams.

The physical aptitude examination (PAE) consists of five events--pull-ups, standing broad jump, modified basketball throw, agility run, and the 300-yard shuttle run.

Following is a summary of the students' athletic ability as indicated by these measures.

Air Force Academy

Approximately 75 percent of the students entering the class of 1974 earned letters while in high school. When responses are analyzed by time of attrition, no statistically significant difference between dropouts and current students exists. Similarly, no statistically significant difference exists between current students and dropouts with respect to athletic scores. However, the current students scored significantly higher on the PAE than those who left the Academy during the first summer.

Military Academy

Approximately 80 percent of the students entering the class of 1974 earned varsity letters in high school. No statistically significant difference exists between current students and dropouts during any of the three time frames.

The Military Academy considers the athletic activity score as a measure of leadership potential. Academy officials say of the high school athletic activity index that the greater the responsibility of the position, the more credit the candidate receives. The Academy does, however, take into consideration circumstances which would prevent one from participating in extracurricular or athletic activities. Data on the high school athletic activity score was not furnished by the Academy and therefore could not be analyzed.

The PAE comprised 10 percent of a candidate's selection score. The Academy says that the "PAE has proved to be an excellent measure of a cadet's ability to successfully complete the rigorous physical and military training programs at the Academy." We found no significant difference between dropouts and current students.

Naval Academy

Approximately 80 percent of entering students earned varsity letters in high school. A statistically significant difference exists between fourth-class academic year dropouts and current students. Sixty-five percent of the fourth-class dropouts earned varsity letters compared to 80 percent of the current students.

In terms of athletic activity score, a statistically significant difference between dropouts and current students exists during the third-class year, with the dropouts having the higher activity score.

Data was unavailable to adequately analyze the PAE scores.

Coast Guard Academy

Seventy percent of entering students earned a varsity letter in high school. During the fourth-class academic year and third-class year, a statistically significant difference exists between dropouts and current students. Unlike the other academies, a student who had earned a varsity letter was more likely to leave the Academy than the individual who had not earned a varsity letter.

Merchant Marine Academy

Data was unavailable.

OVERALL POLITICAL ATTITUDES

In the American Council on Education questionnaire, students were asked at the time of entry to characterize their overall political views as far right, conservative, middle-of-the-road, liberal, or far left. At all academies (data was not available at the Merchant Marine Academy) the entering students characterized themselves mostly as middle-of-the-road with some tendency toward the conservative side.

Analysis of responses between those who dropped out and the current students showed a tendency for the dropouts to be slightly more liberal. This tendency was statistically significant only at the Air Force Academy.

Our analysis showed many more significant differences in attitude between current students and dropouts when we examined their views on specific issues. For example, current students believed more than dropouts that most college officials have been lax in dealing with student protestors on campus and that student publications should be cleared by college officials. On the other hand, dropouts were significantly more positive toward legalizing marihuana, liberalizing divorce laws, and having only volunteers serve in the Armed Forces. A complete discussion of student attitudes on this type of issue is contained in enclosure C.

CHAPTER 4

ANALYSIS OF STUDENT ATTRITION

When we began studying academy attrition, superintendents at two of the academies were pointing to such national, social, and economic factors as the conflict in Vietnam, the civil rights movements, rising affluence, and suspension of the draft as major factors affecting attrition at their academies. One of them also felt that permissiveness toward the high school generation of the late sixties and early seventies had significant impact on academy student resignations.

At about the same time, allegations were being made by a former student of one academy that he was forced to resign because intense hazing led to his complete debilitation. Two students at another academy won honorable mention in the U.S. Naval Institute essay contest with a paper charging that the training system at their academy was authoritarian, insensitive, and unresponsive to individual needs and aspirations. Similarily, the top graduate of another academy had accused it of being inhuman and unresponsive to change. Finally, an official academy report stated that many factors contribute to student attrition, particularly:

> "* * * health, misconduct, academic deficiency, and an unwillingness or inability to adhere to the high and demanding standards characteristic of academy life."

In our discussions with academy officials and some current students, we noted a tendency for them to attribute the reasons for attrition to some enduring personal characteristic or disposition of the dropout--for instance, he was a quitter or lacked self-discipline--or some national or social factor beyond the control of the academy. On the other hand, dropouts and other current students were more likely to attribute the causes of attrition to such environmental characteristics as lack of freedom or time. A striking example of these differing attributional tendencies is contained in table 1 of enclosure A, which summarizes the major reasons why students left one academy as officially stated by them and as stated by academy officers.

These feelings, impressions, charges, and allegations represented to some extent the prevailing beliefs about why students leave the academies before graduation. The following observation by a prominent education researcher is pertinent:

"Public controversy deals in stereotypes, never in subtleties. The Luddites [a group of early 19th century English workingmen who destroyed labor-saving machines as a protest] can smash up a device, but to improve a system requires calm study."

Lee J. Cronbach, "American Psychologist," 1975

Partly because of these differing perceptions of why students leave, we decided to conduct an independent study of attrition at the five service academies to attempt to isolate the major reasons for attrition.

This chapter presents the results of our analyses of why academy students leave before graduating, as well as a discussion of recent actions of the academies and alternatives to reduce attrition. Where appropriate, we have also incorporated the results of prior research on academy attrition.

SOURCES OF ATTRITION

As previously mentioned, we analyzed attrition separately by academy and by time (i.e., first summer, fourth-class academic year, third-class year). In addition, we looked for factors contributing to attrition as it related to not only student characteristics at entry, but also the academy environment and external, non-academy-related factors. We found significant differences in the factors contributing to attrition among academies and, importantly, among time frames.

In general, our analyses show that as students progress through the academy, the influence of the academy environment on attrition increases. During the first summer, it is generally the characteristics of the students which account for most attrition. However, during the fourth-class academic year, and especially the third-class year, the academy environment becomes the dominant source of attrition. External factors appear to play a significant part in Merchant Marine Academy attrition, as well as third-class attrition at the Air Force and Coast Guard Academies.

Some of the factors contributing to attrition during the students' first year at the academy are related to what is termed the "fourth-class system"--the process by which the academies attempt to develop in the student "discipline, devotion to duty, and loyalty to his country." The process involves learning "self-discipline, instantaneous obedience to orders, attention to detail, punctuality, and fundamentals

of military life and knowledge." The student is constantly challenged to perform and to prove his worth. The end objective is to instill the qualities of character and discipline "so deeply * * * that no stress or strain will erase them from his personality."

The importance of the academy environment to attrition takes on particular significance because most recent attrition studies performed by the academies, as discussed in enclosure B, have concentrated on the relationship between attrition and the characteristics of the students who enter. Comparatively little research was directed to critically examining the effect of the academy environment on attrition.

Attempting to control attrition through the types of students admitted tends, in the long run, to develop a rather homogeneous student body. That is, by using the attributes of those who succeed (i.e., the graduates) to establish the criteria for selecting new students, the academies initiate a cycle which decreases the diversity of entering students. This approach also deemphasizes the need to change the environment and particularly ignores the interactive effect between the student and the environment.

Because of the importance of the academy environment to attrition, we see a need to redirect some of the academies' research so that it is more balanced in scope. There should be more emphasis on evaluating the impact of the academy environment on attrition, especially how the environment interacts with the students' characteristics to cause attrition.

We believe that the Office of the Secretary of Defense should, in cooperation with the academies and the services' personnel research organizations, develop, implement, and monitor an overall program for longitudinal research. Such a program would avoid duplication of research, obtain the benefits of multiacademy studies, and overcome any reluctance of the academies to deviate from tradition. This research program should provide for periodic indepth examination of not only the effects of the academy environment on attrition, but also of the academies' policies and practices and their continued relevance to the development of career officers. To the extent practicable, the Coast Guard and Merchant Marine Academies should participate in this program and benefit from the research efforts.

FACTORS RELATED TO ATTRITION

Our analyses identified many factors related to academy attrition. We found no one or few factors which account for most of the attrition. Therefore, large reductions in attrition will probably not come about through limited changes. This is not to suggest that changes should not be made; on the contrary, we believe that change can be beneficial and is necessary. Rather, it is to highlight the fact that the effects of each change should be viewed as part of a broader scheme of changes or a general direction, not assessed solely on its incremental effect on attrition.

The remainder of this chapter will discuss those factors which our analyses identified as the most important contributors to attrition. Our methods and complete results are presented in enclosure A.

While much of the following discussion will be organized around the distinction between student characteristics and the academy environment, we recognize that this is a conceptual oversimplication; however, it is designed to aid communication. Adequate understanding of the causes of attrition requires viewing it as a lack of fit between the needs, desires, values, aspirations, and abilities of the students and their perceived opportunities to satisfy them in the academy environment. Where we can, we attempt to show the interaction between the student characteristics and the specific aspects of the environment which we believe contributed to attrition.

Low level of student commitment

One of the most important factors related to attrition during the first summer--particularly at the Air Force Academy--is a student's level of commitment to graduating from the academy and to a service career. Significantly more first-summer dropouts than continuing students appear to have had, at the time they entered, little intention of graduating or making the service a career.

Our measure of student commitment to graduation and to a service career was made up of a number of questions which the American Council on Education asked students at or shortly after entering the academy, concerning the chances they would:

--Transfer to another college before graduating.

--Drop out of college temporarily.

--Drop out of college permanently.

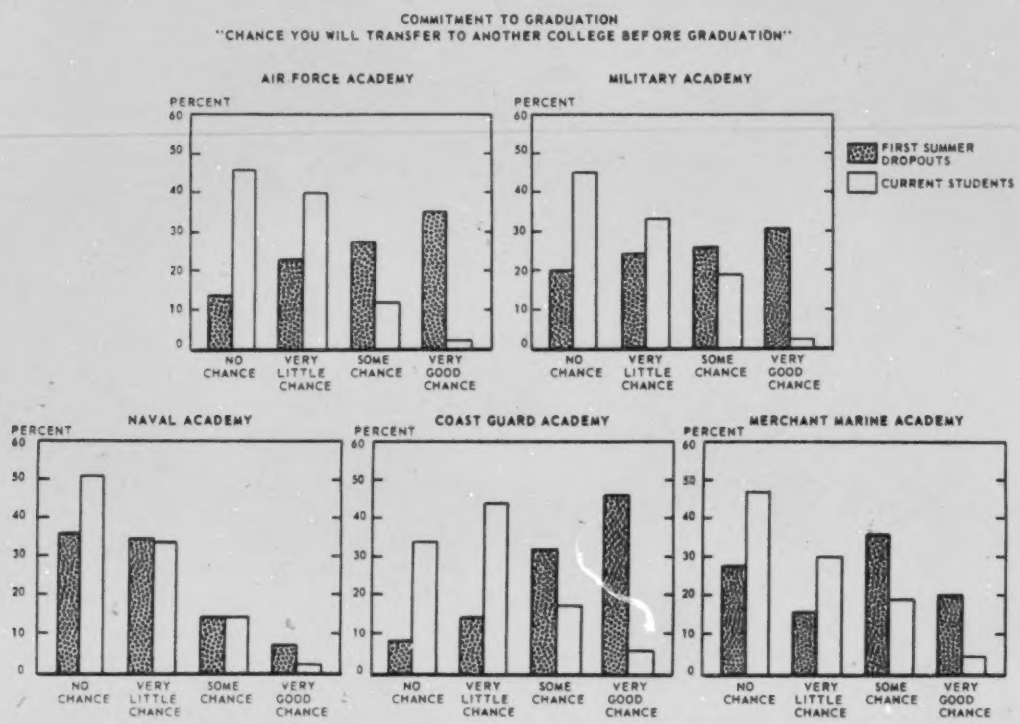
--Get married while in college.

--Change their career choice.

Each of these actions almost always requires the student to leave the academy.

Those who dropped out saw their chances of doing each of these things to be significantly greater than did those who stayed. For example, chart 11 shows the responses of first-summer dropouts and current students about the chances they would transfer to another college before graduation.

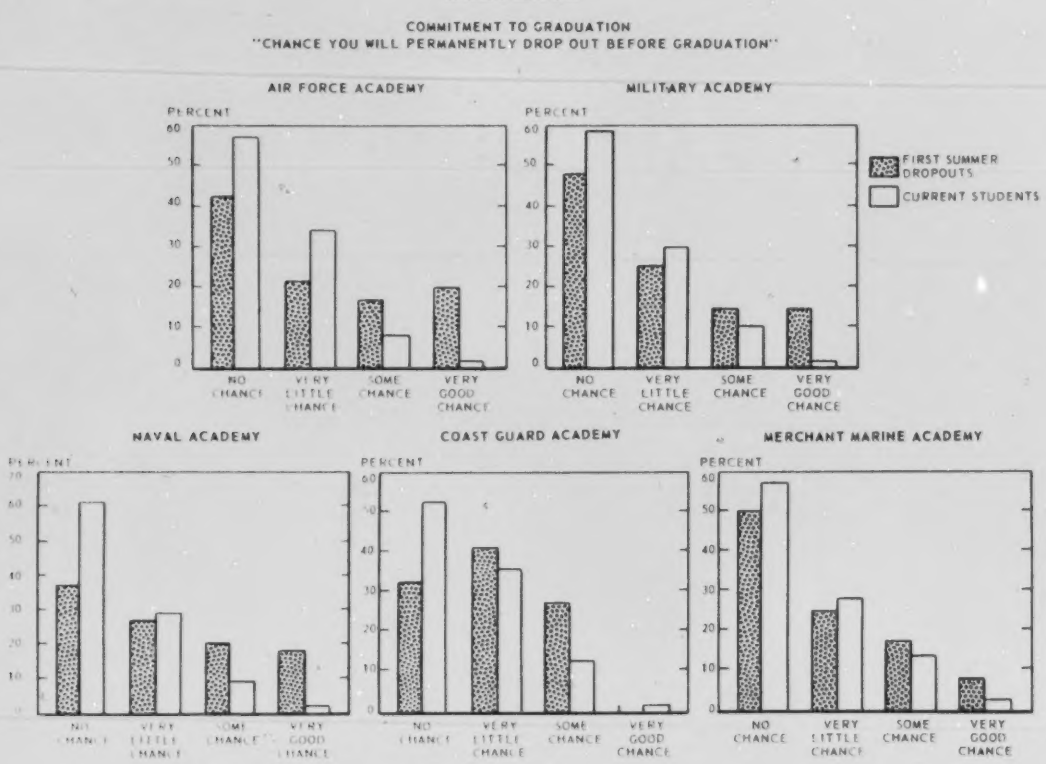
Chart 11



At the Air Force, Military, and Coast Guard Academies, 35, 31, and 46 percent, respectively, of first-summer dropouts stated at or shortly after entry that there was a "very good chance" they would transfer to another college. Among current students, 2, 4, and 6 percent, respectively, made this response.

A similar measure of commitment to graduation is the students' responses to a question about the chances that they will permanently drop out of college. (See chart 12.)

CHART 12



Although these response differences are not as sharp as with the transfer question, they do show that initial commitment is also important at the Naval Academy, where 18 percent of first-summer dropouts had stated on or shortly after entry that there was a "very good chance" they would drop out of college, while only 1 percent of current students had felt they would drop out.

To appreciate the importance of initial commitment, one must remember that the life of an academy student is extremely hard, especially during the first summer. The Commandant at one academy expressed it this way: "The newly arrived cadet walks into the barracks--and wham, the world caves in around him." Recently, the Air Force Academy began issuing a booklet to prospective candidates which, in stark and realistic detail, describes the first-summer challenges to commitment. In part, the booklet warns:

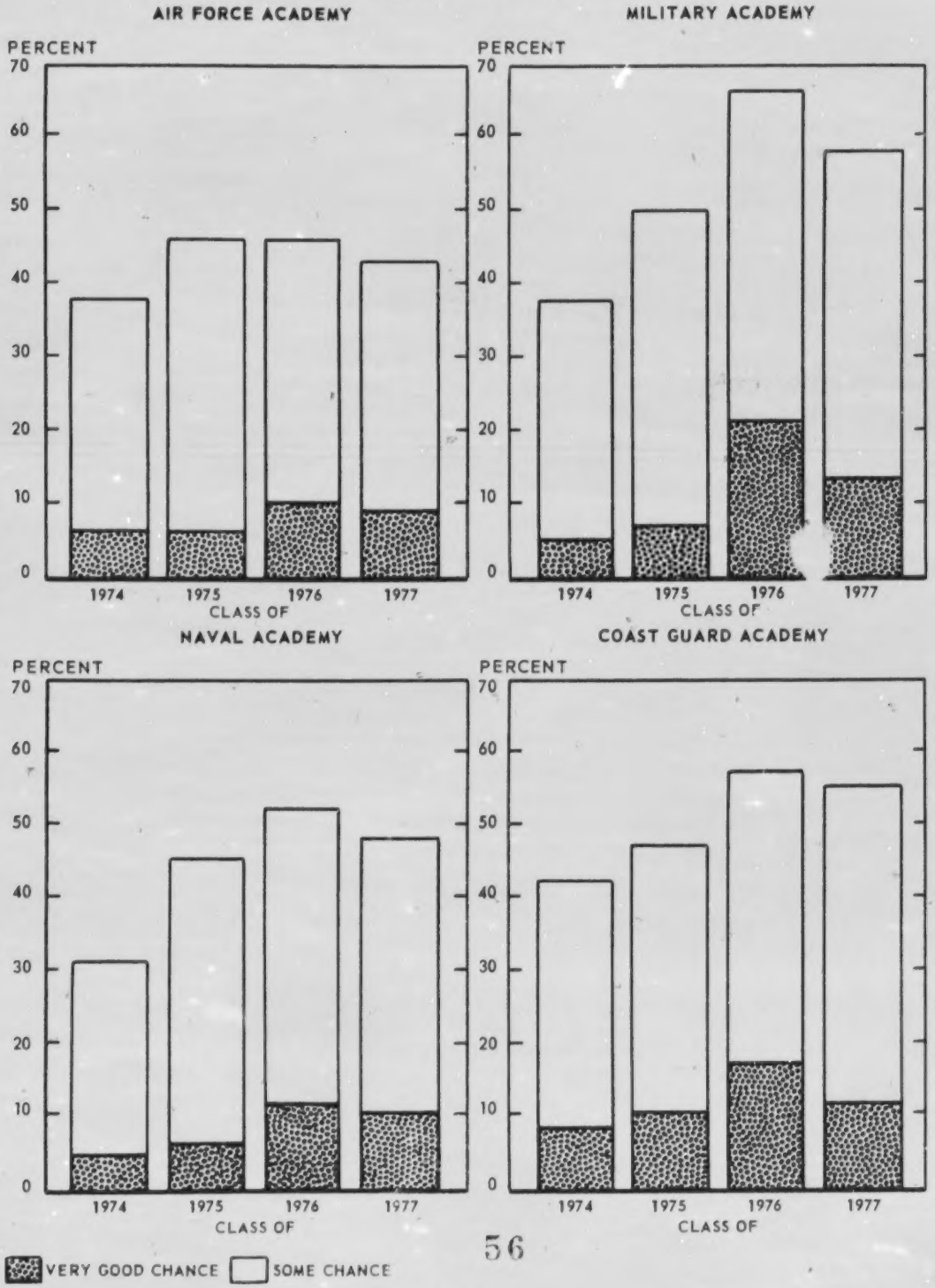
> "For each of the 45 days, there are about 15 hours of scheduled activity. Basic cadets have very little time to call their own. * * * It starts with lines. There's a line for everything: turning in money and personal possessions, filling out all sorts of forms, picking up uniforms, shoes and boots, and a rifle. And for leaving all but a quarter-inch of hair on the barber's floor. * * * [The basic cadet] is given a room * * * clean, well-equipped, and well-designed, but it's stark, and with it come a hundred rules on how to keep it looking a certain way. * * * The upperclassmen are everywhere, controlling everything. * * * Basic cadets run or march everywhere they go * * *. The lungs hurt. Everything hurts!"

This description makes clear the need for a high level of commitment among academy students.

Our analyses also showed that whether or not they eventually drop out, many entering students are not committed to a service career. Chart 13 shows the percentage of students from the academies' classes of 1974 to 1977 who, at or shortly after entry, stated there was "some chance" or a "very good chance" they would change their career choice. (The response alternatives were (a) no chance, (b) very little chance, (c) some chance, and (d) very good chance.) There is a sizable percentage of students who do not appear to be highly committed to a service career at entry.

CHART 13

PERCENT OF ENTERING STUDENTS WHO BELIEVED THERE WAS "SOME" OR "A VERY GOOD" CHANCE THEY WOULD CHANGE THEIR CAREER CHOICE



This low commitment is not surprising. At this point in their lives, many students--whether at the academy or elsewhere--possess similar levels of commitment. In fact, entering academy students tend to have higher levels of career commitment than other entering students. The American Council on Education found in their fall 1973 survey of entering freshmen that 19 percent of male students entering highly selective public universities stated that there was a "very good chance" they would change their career choice. By comparison, between 9 and 13 percent of the academy students who entered in 1973 (class of 1977 in chart 13) felt there was a "very good chance" they would change their career choice.

Since this low commitment is present, it is relevant to ask what the academies are doing to encourage students' commitment. In this regard, several Military and Coast Guard Academy studies have shown that a student's commitment and his image of the academy decrease the longer he is there. The Military Academy study found that the average student in the Military Academy classes of 1969 to 1972 had a lower commitment to a military career on graduation than on entry. The study concluded:

> "Graduating classes are significantly less committed to a lifetime of military service than are entering classes. In spite of greater attrition of cadets with lower degrees of motivation, there was an increase of about 4 percent in the number of cadets indicating that it was unlikely that they would serve beyond their obligated time and a substantial increase to about 49 percent in the percentage that indicated they would reserve judgment."

This study indicates that the academy environment is not having a motivating effect on many of its students. The effect on some, particularly those who have a low level of commitment at entry, may be so negative that it exceeds the level that they are willing to tolerate and, therefore, contributes to their dropping out.

Alternatives for reducing attrition due to commitment

We have identified three alternatives for reducing attrition through increasing student commitment. They are discussed below, along with some of the difficulties inherent in adopting them and some of the actions academies have taken on these alternatives.

Selection strategies for increasing commitment--One method for increasing initial commitment is to select only those applicants who--after meeting academic, leadership, and physical ability requirements--exhibit the highest levels of commitment. Current state-of-the-art in personnel selection, however, does not hold much hope that the addition of a new test or questionnaire to existing admissions batteries will permit adequate assessment of commitment.

There does appear to be hope, however, of increasing commitment at the pre-entry stage either by (1) encouraging self-selection out of the admissions cycle by those who do not have high commitment or (2) more adequately preparing entrants for the challenge their commitment will face. A number of academies have been attempting to give their applicants more realistic expectations about academy life. The Military Academy pioneered this approach in 1969 by providing a booklet which was intended to "tell it like it is" to a sample of the entering class of 1973. A study of attrition from this class (described in enclosure B) found that a smaller percentage of those who received the booklet left after the first year, indicating that the booklet had some positive retentive effect.

More recently, both the Air Force and the Coast Guard Academies have begun to distribute similar booklets. In addition, the Air Force Academy booklet contains a return questionnaire to assess whether the respondent actually read and assimilated the material. Furthermore, the Academy is currently experimenting with sending qualified applicants to air bases for additional interviews with Academy graduates and observations of flight operations. These efforts are designed to increase the accuracy of potential students' expectations and thus provide a more realistic basis for their commitment--a basis less subject to being undermined by the challenges they will experience. We believe all academies and their respective contact officers should increase their efforts to "tell it like it is," especially in view of the evidence that some students don't see how incompatible they are with the military until they are in the academy environment. (See pp. 50 to 53.)

Early identification of low commitment--Many at the academies have told us, nevertheless, that you cannot really tell others about academy life; it must be experienced to be understood. To the extent this is true or to the extent that entering students will continue to hold unrealistic expectations or enter with low commitment for whatever reason, we are suggesting another method of increasing commitment. This consists of identifying in the first days of summer training those whose commitments are low or wavering and providing them with counseling which might encourage them to stay.

Since 1971, the Air Force Academy has been identifying students who manifest acute situational anxiety during the first summer, which causes major adjustment difficulties. Those identified are then sent, along with well-adjusted students, for counseling. This "double-blind" procedure is designed to prevent a stigma from counseling. Unfortunately, hard data on the success of this 5-year experimental project will not be available until late 1976. Since we found that commitment was related to attrition not only during the first summer, but also almost 2 years later during the third-class year, we believe that a questionnaire--such as the ones used by the Air Force Academy and the American Council on Education--which allows the respondent to be identified and subsequently counseled could reduce attrition. We encourage academies who do not currently do so to explore this alternative.

Increasing commitment-developing aspects of the academy environment--In our opinion, the best way to reduce attrition due to low commitment is to adopt a training philosophy expressed by a committee which studied Air Force Academy attrition early in 1969. With respect to training during the first summer, the committee stated:

> "The assumption that the entering cadet is highly motivated towards the Air Force and the Academy is a questionable assumption. It would be better to assume he is not and conduct a Basic Cadet Training that would stimulate motivation rather than merely to test it."

Recently, three academies have made definite efforts, in the words of the Commandant of the Coast Guard Academy, "to eliminate all meaningless indoctrination" which does not contribute to the Academy's training objectives or increase its attractiveness or the attractiveness of a service career. These efforts by the Coast Guard, Air Force, and Military Academies may eventually reduce attrition. However, careful study of the attrition figures for the class of 1978 (see chapter 2) shows that (with the possible exception of the Coast Guard Academy) these changes appear to have done little to decrease attrition compared with the class of 1977, on which our study of first-summer and fourth-class attrition was focused. (The major decrease in Coast Guard Academy attrition may be due, more than anything else, to a policy change in December 1974 which allowed students to remain a minimum of two semesters before being dismissed for academic deficiency.)

Each of the academies should increase its efforts to critically examine its policies and practices in terms of how they contribute to developing a motivated career officer. Data on academy environmental factors related to attrition, presented later in this chapter, suggests ways to improve motivation and retention rates. Also, the recent Coast Guard policy change delaying academic attrition should be carefully monitored both by the Coast Guard Academy and the other academies, since early results indicate that 6 of 15 students who would have been dismissed previously were able to improve their grades sufficiently to meet academic standards after one semester.

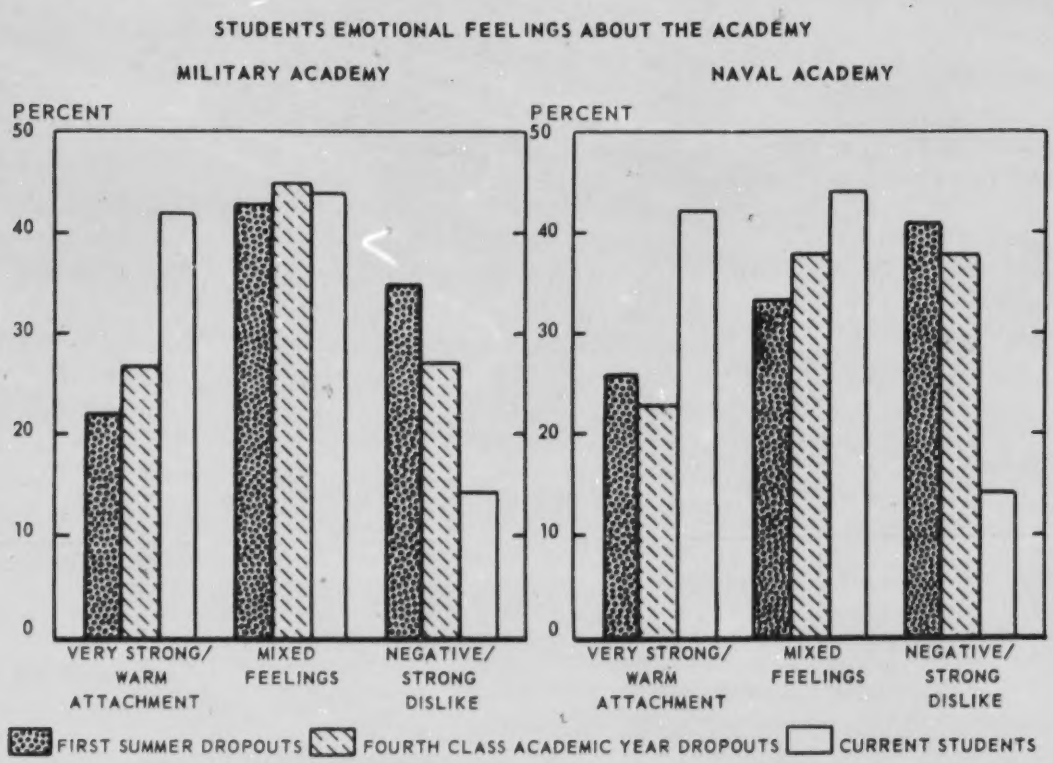
Overall dissatisfaction with the academy

Overall dissatisfaction with the academy is related to some first-summer and fourth-class-academic-year attrition at the Military and Naval Academies. This factor was not substantially related to attrition at any other academy or during the third-class year at the Military and Naval Academies.

Student responses to two general types of questions made up the measure of general dissatisfaction with the academy environment. The first type has traditionally been used in organizational morale studies, and consists of questions about (1) whether the student would encourage a close friend to attend the academy and (2) what emotional feelings the student has about the academy--ranging from "very strong attachment" through "strongly dislike."

As can be seen in chart 14 below, first-summer and fourth-class-academic-year dropouts and current students at both the Military and Naval Academies had different feelings. Those with negative feelings were much more likely to leave than those with more positive feelings.

CHART 14



Responses to the second type of question indicated some of the reasons for the students' overall dissatisfaction. This type of question asked about the following aspects of the academy environment:

--Personal growth opportunities.

--Frequent challenges to ability.

--Leading a disciplined life.

--Increasing familiarity with the military.

For fourth-class academic year students, we also included questions about specific aspects of the academic program, such as opportunities to take subjects of interest, the intellectual or educational challenge in the curriculum, and the amount of technical emphasis in the curriculum. Consistently, those who had more negative feelings overall about the academy (and were thus more likely to leave) were also less

satisfied with these specific aspects of the academy environment. Following is a more detailed discussion of the relationship between overall dissatisfaction and attrition for the Military and Naval Academies during the first summer and fourth-class academic year.

First summer

As was shown in chart 14, Military Academy dropouts were, as a group, substantially less satisfied with the Academy than current students. While many aspects contributed to this dissatisfaction, some were more important than others.

Those who left were especially more dissatisfied with (1) the military training program, particularly as it related to leading a disciplined, structured life, and (2) living in a competitive environment. They also saw less opportunity for personal growth, and they were less satisfied with the amount of challenge to their ability. Our analyses indicate that the more they saw of the military environment, the disciplined life, and the competition, the more they were dissatisfied and the less they saw themselves as being like other officers at the Academy, as well as recent Academy graduates. They saw themselves more like other students who resigned. Also, more than the current student, they attended the Academy for purposes other than leadership training and physical development--a large part of first-summer training.

Although not so much as at the Military Academy, dropouts at the Naval Academy were also more dissatisfied than current students with the first-summer training, and, basically, for many of the same reasons. They, too, were dissatisfied with the military training program, and particularly with having to lead a disciplined, structured life and live in a competitive environment. The more they became familiar with the miltary service, the more they saw themselves as dissimilar to other officers in general, Academy officers in particular, and even recent Academy graduates.

This feeling of similarity or dissimilarity plays an important part in attrition. Our analyses clearly indicate that the ability to see oneself as similar to officers at the Academy or recent Academy graduates can have an important retentive effect on the students. We found that those who stayed saw themselves as similar in attitudes to officers at the Academy, other officers and military personnel, and recent Academy graduates. On the other hand, those who dropped out saw themselves as similar to students they knew who resigned or were separated and students attending civilian colleges. (See p. 64 for a further discussion of reference group identification).

All in all, it appears that the needs of the students who left during the first summer were basically incongruent with the military environment; that is, they could not or did not want to adapt to the disciplined, structured life which exists at the Academy, and they disliked the competitive environment. Therefore, they tended to see themselves as dissimilar to those who could adapt--the officers and graduates of the Academy--and they left.

Research done by a number of academies provides some explanation for the dropouts' responses that regimentation and a lack of personal growth opportunities decreased their desire to stay. Academy research has consistently found that the average dropout is unlike his continuing classmate, who has a need to get others' opinions and suggestions, to follow instructions and leaders, to do what is expected, to conform to the norm and avoid the unconventional, and to let others make the decisions. Rather, the average dropout needs to be self-directed, to come and go as he desires, to say what he thinks, to decide for himself, to do unconventional things, and to criticize those in positions of authority. In addition, this research indicates that the dropout is more creative than the student who stays but is less concerned with order in his environment.

Fourth-class academic year

During the fourth-class academic year, overall dissatisfaction with the Military Academy and especially with the Naval Academy was again a major contributor to attrition. However, unlike the first summer when dissatisfaction was primarily related to the military training program, fourth-class academic year dissatisfaction was associated more with the academic program.

There were a large number of aspects of the academic programs at both academies which created greater overall dissatisfaction among the dropouts and contributed to attrition, but primarily they related to students' perception of

--the quality of academic instruction,

--the variety of courses offered,

--the intellectual and educational challenges in the academic curriculum, and

--the opportunities to study subjects of interest.

Those who left were significantly more dissatisfied with each of these aspects of the academic program than the current students and at the Naval Academy also stated that they had less accurate expectations of the academic program. Of Naval Academy students who dropped out in their fourth-class academic year, 34 percent stated they had inaccurate expectations about the academic program, as did 17 percent of the current students. Also, accuracy of expectations about the academic program was positively correlated with the level of satisfaction with that program.

In addition to their perceptions of the academic program, a major contributor to overall student dissatisfaction and attrition during this period was again the effect of increased familiarity of the dropouts with the military service, and their perceived lack of opportunity at the academy for personal growth and development. Dropouts were also more dissatisfied with the competitive environment and, at the Naval Academy, with having to lead a disciplined, structured life.

One relevant point is that--whether or not they leave--students at the Military and Naval Academies do not distinguish between the academic and military programs when they report their overall level of satisfaction with the academy. Students at the other three academies do make this distinction. In fact, among Air Force Academy students the distinction is referred to as "the terrazo gap" because of the terrazo court which must be crossed when going from academic buildings to military training buildings. According to one recent academy graduate, the gap is most typified by comparing English, humanities, and social science professors, who encourage openmindedness and aggressive pursuit of knowledge, with military training officers, who demand submissiveness and instant obedience.

Dissatisfaction with traditional military training exercises

More than the academic program, the military training program gives the academies their unique character in American higher education. It also probably contributes most to the student's image of the institutional environment. Perhaps because of this, most of our understanding of the relationship between military training factors and attrition is indirect and requires reference to challenges to commitment and other student-environment interactions.

However, we did find that dissatisfaction with the traditional military exercises was an important factor related to first-summer and third-class-year attrition at a number of academies. Specifically, it was related to first-summer

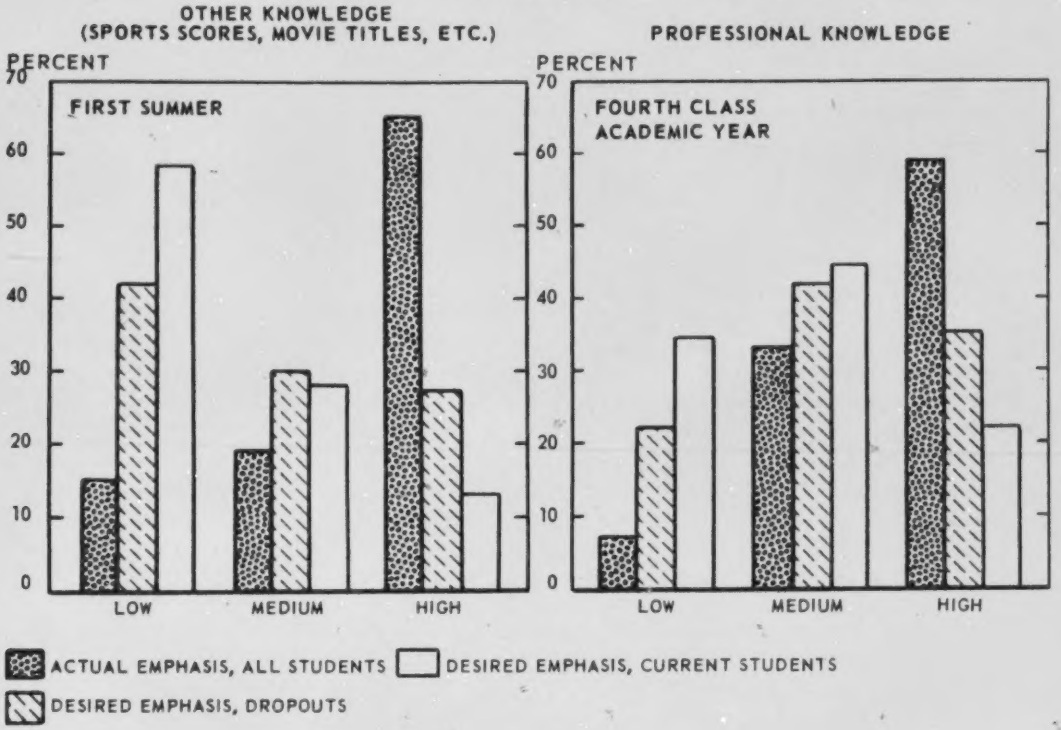
attrition at the Air Force, Military, and Coast Guard Academies and to third-class year attrition at the Military, Naval, and Coast Guard Academies. At the Naval and Coast Guard Academies this dissatisfaction reflects a perceived overemphasis during the first summer and fourth-class academic year on learning such information as sports scores and the titles and names of local movies for recitation to upperclassmen. At the Military Academy, the factor also measures perceived overemphasis on inspections, on drills and ceremonies, and on learning for recitation "professional knowledge," such as ranges of weapons and military ranks and insignia. At the Air Force Academy, it reflects principally the dropouts' perceived overemphasis on professional knowledge.

To adequately portray the amount of professional and other information academy students must master by the end of the fourth-class year is difficult. For example, the outline of knowledge requirements at one academy was 30 pages long and referred to four other official documents for specific details on the information to be memorized. Brochures published by the academies state that the fourth-class academic year is the most difficult in terms of finding time to satisfy physical, military, and academic training requirements. Whether the third-classmen stay or leave, they view the recitation requirements as overemphasized in an already demanding environment, and they are responsible for drilling fourth-classmen on that knowledge.

Some indication of how much third-classmen feel that knowledge requirements are overemphasized is provided by chart 15. For all academies, both dropouts and current students reported about the same levels of actual emphasis on professional and other knowledge. Both groups also reported desiring less emphasis on these recitations, in view of the objectives of the academies as they understood them. However, a much greater percentage of dropouts desired reduced emphasis. Thus, for example, chart 15 shows that 15 percent of both dropouts and current students reported a low level of actual emphasis during the first summer on other knowledge recitation, but 42 percent of the current students and 59 percent of the dropouts felt there should be low emphasis on this knowledge during the first summer.

CHART 15

EMPHASIS ON RECITATION DURING FIRST SUMMER AND FOURTH CLASS ACADEMIC YEAR
AS REPORTED BY THIRD CLASSMEN ALL ACADEMIES



Two academies have stated that they recently changed fourth-class training during meals. The Military Academy described those changes this way:

> "Cadets would not be allowed to use the leverage of denial of food as a substitute for leadership. Good manners and gentlemanly decorum is to be substituted for loud shouting, harassment, and other absurdities of the Cadet Mess."

The report of the Board of Visitors to the Air Force Academy after our questionnaire administration noted that harrassment of fourth-classmen during meals had been eliminated.

While these changes are commendable, and long overdue in the board's opinion, they are not properly focused with respect to such matters as fourth-class knowledge. Considering the time required to learn the knowledge, some of which is of questionable value, and the pressures involved in having to recite it correctly during an already hectic and stressful

time, the academies should eliminate unnecessary emphasis on learning professional, and particularly, nonprofessional types of "knowledge." The Military Academy should also reexamine the need for the current amount of drills and ceremonies. In this regard, DOD replied that the Military Academy has reduced the level of drills and ceremonies by 35 percent for the fall semester of 1975 and further reductions are anticipated in the spring of 1976.

Dissatisfaction with the academic program

We previously discussed certain aspects of the academic program which were associated with overall dissatisfaction, which in turn contributed to attrition.

In addition, we also found that during both the fourth-class academic year and the third-class year, a number of students left specifically because of their perceptions of the academic program which were not part of broader overall dissatisfaction with the academy. Feelings about the academic program were related to attrition during the fourth-class academic year at all but the Naval Academy, and at all academies during the third-class year. (At the Merchant Marine Academy, we did not have complete data.)

Our measure of the academic program included a rather long list of questions about specific aspects of the program, such as student perceptions of

--the quality of academic instruction,

--whether the instructors knew their subject matter well,

--the availability of individual instruction,

--the intellectual and educational challenge in the curriculum,

--the variety of courses offered, and

--the opportunity to study subjects of interest.

Our analyses showed that among the academies and between the time frames, different aspects of the program contributed to the dropouts' greater dissatisfaction. Therefore, we will briefly discuss each academy separately.

Air Force Academy

During the fourth-class academic year, some of those who left the Air Force Academy indicated that they were dissatisfied with the academic program and particularly with what they perceived to be the quality of the academic instruction. More specifically, some dropouts reported difficulty in obtaining individualized instruction. In contrast with those who stayed, these dropouts said that fewer of their instructors gave special instruction to those who needed it. They also reported having fewer instructors who knew their subject matter well. Since most attrition due to academic deficiency occurs in the fourth-class academic year, one might suppose that some fourth-class dropouts were particularly in need of special tutoring.

During the third-class year, the specific academic aspects which contributed to attrition were broader than during the fourth-class academic year. Dropouts were still less satisfied with the quality of academic instruction, as well as with the lack of (1) variety of courses and (2) opportunity to study subjects of interest.

Military Academy

During the fourth-class academic year, some of the same feelings about the academic program applied to the Military Academy--dropouts perceived fewer instructors who knew their subject matter well, less individual instruction, and generally poorer academic instruction. However, in addition, Military Academy dropouts were more dissatisfied with the number of courses in which the instructor stimulated their interest in the subject matter, the intellectual and educational challenge in the curriculum, and the extent to which the instructors encouraged classroom discussion.

Third-class year dropouts continued to be less satisfied with the quality of the academic instruction--there was a rather large list of items. However, they were also much more dissatisfied with what they felt were the intellectual and educational challenge in the curriculum, the variety of courses offered, and the opportunity to study subjects of interest.

Naval Academy

The principal aspect of the academic program associated with third-class attrition was the perceived quality of academic instruction. Specifically, dropouts were less satisfied with the intellectual and educational challenge in the curriculum and with the number of courses where the instructor stimulated their interest in the subject matter.

In addition, dropouts were less satisfied with the variety of courses offered, the emphasis on technical matters in the curriculum, and the opportunity to major in, concentrate in, or take subjects of interest. They also saw more limited opportunity for personal growth and development and graduate school. Those who were more dissatisfied with the academic program also had less accurate expectations of the program at the time of entry. This indicates that some of their dissatisfaction may be related to not knowing what the Academy program was like before they came.

Coast Guard Academy

Fourth-class-academic-year dropouts were more dissatisfied with the quality of academic instruction and with course content and availability. More specifically, they were more dissatisfied with the intellectual and educational challenge in the curriculum, the number of courses where the instructor stimulated their interest in the subject matter, the emphasis on technical matter in the curriculum, the opportunity to study subjects of interest, and the variety of courses. This group also had less accurate expectations about the academic program than the current students.

In the third-class year, the principal sources of dissatisfaction were the limited variety of courses and opportunity to study subjects of interest. Dropouts were also more dissatisfied with the emphasis on technical matters in the curriculum. Those who were less satisfied with these aspects of the academic program also had less accurate expectations about the academic program.

Merchant Marine Academy

At the Merchant Marine Academy during the fourth-class academic year, dissatisfaction with the academic program was related primarily to the limited opportunity to study subjects of interest. However, dropouts were also more dissatisfied with the emphasis on technical matters in the curriculum, the intellectual and educational challenge in the curriculum, and the variety of courses.

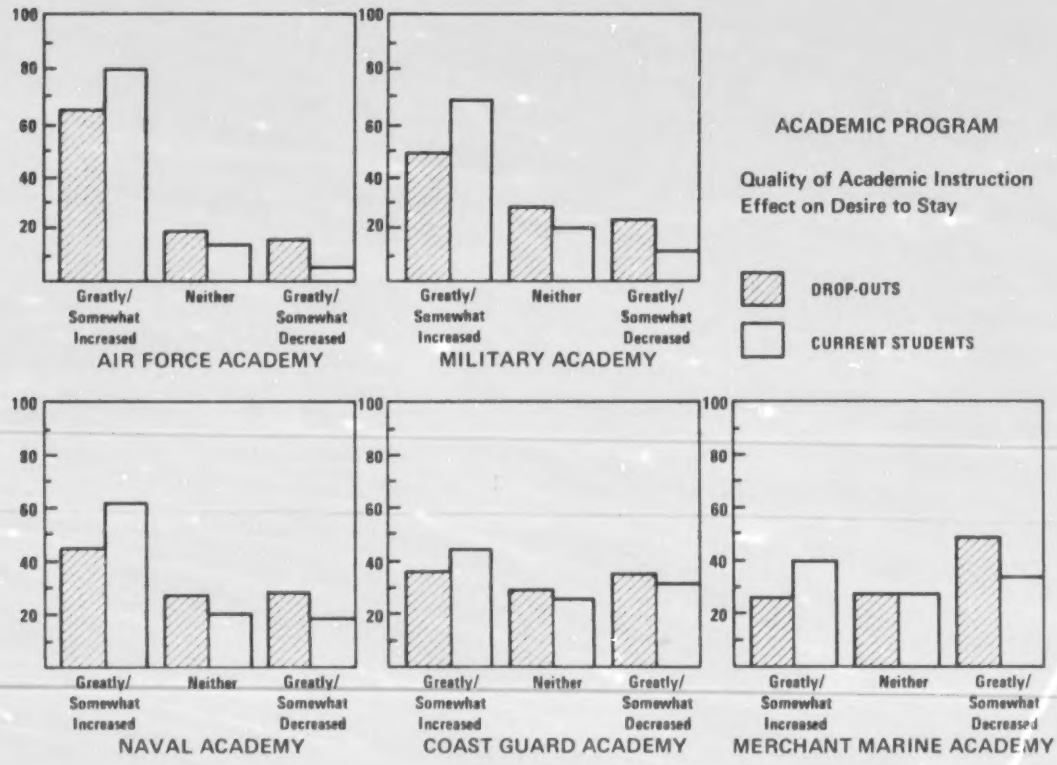
Conclusions

We identified a number of academic factors which affect attrition to varying degrees at most of the academies. During the fourth-class academic year, the principal factor is the students' perceptions of the quality of academic instruction. During the third-class year, it is their dissatisfaction with the course variety and opportunity to study subjects of interest and the emphasis on technical matters in the curriculum.

There is also evidence that, at some academies at least, some dropouts did not realize the limited majors available and the technical emphasis in the curriculum. We found, for example, consistent and statistically significant correlations between accuracy of expectations about the academic program and satisfaction with both (1) the opportunity to major in, concentrate in, or take subjects of interest and (2) the emphasis on technical matters in the curriculum. That is, those who were more dissatisfied with the curriculum had more inaccurate expectations of that curriculum.

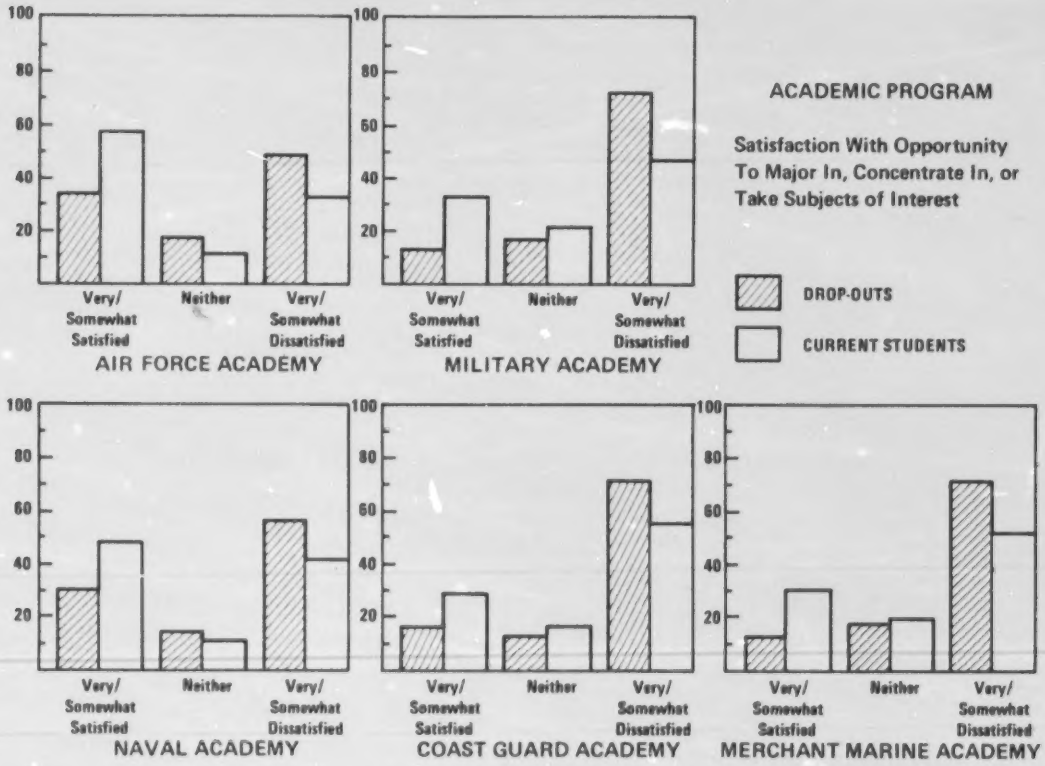
A number of academies replied that the quality of academic instruction is high and individual help is readily available. Most current students and dropouts agreed. (See chart 16.)

CHART 16



Nevertheless, some students were dissatisfied with academic and individual instruction, and this feeling was associated with attrition. (Whether satisfaction is correlated with attrition is largely explained, not by absolute levels, but by response differences between dropouts and current students.) On the other hand, many more dropouts and current students were dissatisfied with opportunities to study subjects of interest. (See chart 17.)

CHART 17



The result of students' dissatisfaction with the number of available majors and variety of courses can, perhaps, best be illustrated by the following table. For those who dropped out of the academies between 1970 and 1974 but continued their undergraduate studies elsewhere, 31 to 66 percent stated they continued in an area not available at the academies.

Academy	Percent of dropouts who: Continued undergraduate studies	Continued in an area not available at the academy: Of total dropouts	Continued in an area not available at the academy: Of continuing dropouts
All	73	35	47
Air Force	76	24	31
Military	75	45	60
Naval	73	34	47
Coast Guard	68	44	64
Merchant Marine	63	42	66

Changes in vocational choice

That a large percentage of entering students have low commitments to a service career (see p. 43) and that many are dissatisfied with the restrictive environment at the academies--both academically and militarily--is consistent with much of the research on vocational choice.

Research theories stress that the late teens and early twenties are characterized by changes in vocational preferences. As one study points out:

> "Careers are rarely chosen by a person who, in high school or college, surveys the future and plots his course ahead through the years. * * * For most people * * * the steps they go through in their careers are somewhat unclear; they move by successive approximations toward a place in the world of work."

A number of empirical studies have demonstrated the instability of vocational choice in the college years. One researcher analyzed data collected on 34,000 graduates from 135 United States colleges and universities. He found that between the freshman and senior years, 37 percent shifted fields of study. If changes to related fields (e.g., chemistry to physics, or sociology to psychology) were included, about half of the students would have been considered to have changed their career preferences.

Although one might expect high-ability students to be vocationally more mature, they do not appear to be any less subject to instability in their career choices.

--In a sample of 248 male high school senior finalists in the National Merit Scholarship program, a comparison was made between choice of vocation as a high school

senior and choice after 4 years. Forty-four percent had changed their vocational choice.

--In an 8-year study which included all the National Merit Scholarship winners over a 4-year period, 66 percent of male students reported major changes in career choices during college.

--From a random sample of male freshmen entering Harvard, 64 percent had changed their major field during the course of their 4-year college careers.

These are but a few of the studies which point out the unstable nature of vocational choices of college-age students. Since a shift in vocational choice by an academy student will necessitate a change in schools if the new choice is unavailable at the academy, changes in vocational preferences will most likely always cause some attrition of academy students. However, the present structure of the academies, with its restrictive environment, does little to accommodate this tentative nature of students' commitment. Academy students are faced with a fairly narrow choice of vocations, and they are forced to make a decision committing up to 7 years of their lives (2 in the academy and 5 on active duty) to a specific military organization at an age when people characteristically are indecisive about their long term career goals.

Alternatives for reducing attrition

One alternative which could reduce attrition involves establishing a more gradual buildup of commitment rather than forcing a decision at the beginning of the second-class year. This buildup could be accomplished by making academy attendance a financial obligation which must be repaid if the student does not complete the program. This system would be similar to the proposed conversion of Reserve Officer Training Corps scholarships to loans for dropouts of that program. If, after further study, this alternative is accepted, the Secretaries of the Departments should propose to the Congress appropriate changes in legislation.

Because students' expectations and perceptions of the academic program influence attrition, each academy should try harder for two-way communication with its qualified applicants to (1) apprise them of the nature of the curriculum and (2) ascertain their academic-major preferences and career aspirations. Applicants should be told when (1) their preference of majors is not included in the curriculum or (2) their career aspirations are unlikely to be satisfied at the academy or in the service. They should also be informed

of the physical, psychological, and intellectual rigors of academy life.

With respect to our finding that dropouts perceive less individual instruction available and poorer instructional quality than those who stay, it should be remembered that these differences occur principally in the fourth-class academic year, when attrition due to academic deficiency is highest. Since our study, a number of academies have taken steps which might moderate one of these sources of attrition. The Coast Guard's policy of delaying academic attrition for a minimum of two semesters was discussed earlier. (See pp. 49 and 50.) The Naval Academy initiated a summer school in 1973 and has expanded the class from 115 to 500 midshipmen this past summer. The summer school is designed to reduce course overload during the academic year for those experiencing academic difficulties. The Military Academy reduced fourth-class mathematics lessons by 17 percent and reduced lessons in all other required courses by 10 percent. Each of these examples may give the academically deficient student and his teachers more opportunity for individualized instruction. They should be monitored closely and the results shared among all academies.

End-of-course critiques appear to be used, to varying degrees, by most academies to improve instruction. We believe that such critiques--or some other similar expression of concern for students' opinions about the academic program--may reduce attrition, and we encourage all academies to make more use of them. Such an expression of interest may not only improve perceptions of instructional quality but also increase students' perception of control over their environment. (See p. 72.)

Another way to increase satisfaction with course variety is to allow students to switch majors more easily. At most academies, a student who has selected a major or area of concentration has difficulty changing it.

Reference group identification

Substantial research has shown that the closer an individual's attitudes and beliefs are to those of a reference group, the stronger is his attraction to the group and the more likely he is to remain in the group. Inversely, the more he perceives himself as different from the group, the less he is attracted to it, and the more likely he is to leave it.

In our questionnaire, we asked current students and dropouts how much their attitudes and beliefs agreed with

--officers at the academy,

--other officers,

--academy students,

--recent academy graduates,

--students who resigned or were separated,

--civilian college students, and

--peers in their hometown.

At a number of academies, and during all time frames, the ability of students to identify with a military reference group, either the officers at the academy, other officers, or recent academy graduates was an important factor in whether they stayed at the academy. Conversely, where the students saw themselves more similar to students who resigned or were separated or to peers in their home, they were more likely to drop out.

In a number of instances, the nonidentification with a military reference group was a specific factor in attrition; that is, it was unrelated to other aspects of the academy environment. In other instances, however, there were significant relationships between military reference group identification and other aspects of the academy environment. This observation gave us some insight into what influences students' perceptions of themselves as similar or dissimilar to a military reference group.

Some students do not see themselves as dissimilar to military officers until they are exposed to a military environment. This appears to be the case for some students who dropped out during the first summer, after being exposed to the lifestyle at the academy. (See pp. 50 to 54.) In other cases, more specific aspects affect reference group identification. For example, during the third-class year at the Military and Coast Guard Academies, military reference group identification was related to a feeling on the part of dropouts that while at the Academy they had to do things contrary to their judgment. This role conflict was also of itself an important factor in third-class attrition. (See p. 66.)

This finding is consistent with research at one academy which showed that students who resign are more like the general public in terms of the importance they assign to certain life values. Students who stay, on the other hand, are

more like academy officers in terms of these values. Those who stay assign higher importance than those who leave to obedience, ambition, and responsibility, but they assign lower importance to cheerfulness, imagination, inner tranquility, and love.

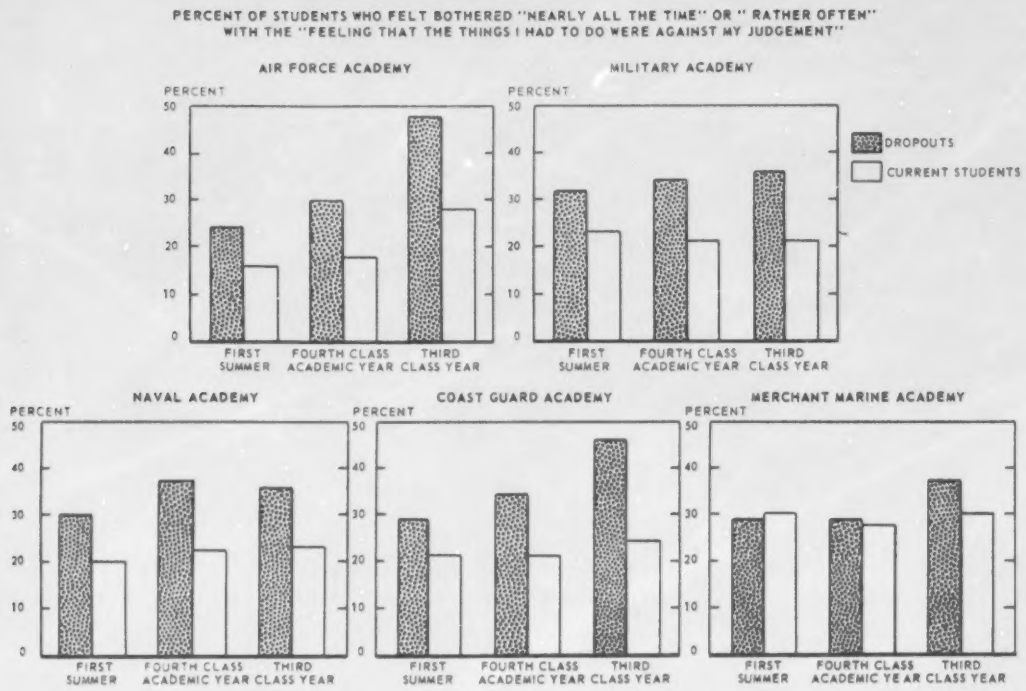
Since our study, the Naval Academy has begun partially substituting attitudinal-survey scores for the value previously given in the selection process to recommendations of high school officials. The idea is to bring in new students with attitudes similar to those of graduates, thus decreasing the probability of attrition among entering students due to nonidentification with a military reference group. Although this effort could reduce attrition, the Navy experiment should be monitored carefully, in view of the normally rapid loss of relationship between such selection measures and attrition.

We again caution against what appears to be an emphasis on controlling attrition through the types of students admitted. By focusing on those who succeed, i.e., the graduates, the academies create a cycle which decreases the diversity of incoming students and creates more homogeneous groups of incoming students and graduates. We are not implying that the academies are not attempting to change the environment--many are making changes. Rather, we are pointing out what appears to be an overemphasis on selection control. (See p. 41.)

Role conflict

A major factor in the Air Force Academy's third-class attrition--and a lesser factor at other academies--is the dropouts' feeling that they had to do things against their judgment. In our questionnaire, we asked students to indicate how often during their first summer, fourth-class academic year, and third-class year they felt that "the things I had to do were against my judgment." Those who dropped out in their third-class year consistently felt more strongly during all three time frames that they had to do things against their judgment. Chart 18 shows the responses of all dropouts and current students who responded to the question.

CHART 18



At the Military and Coast Guard Academies, those who reported this role conflict also reported more dislike for the Academy and dissimilarity with Academy officers. At the Air Force and Coast Guard Academies they also reported more dissatisfaction with the opportunities for personal growth and for exercise of initiative.

With respect to the nature of the role conflict indicated by these last two items, it should be noted that a number of modern critics of bureaucracy consider this conflict as stemming from the individual's need for psychological growth and society's need for stable organizations. According to one well-known writer on organizations, these critics:

> "* * * deplore the subordination of the individual to the group, 'over-conformism,' the derogation of individual brilliance and invention, the affectation of good will and good feeling, the devaluation of technical competence as compared to merely 'getting along,' the insistence on avoiding conflict. They deplore the loss of individual freedom and initiative."
>
> Victor A. Thompson, "Modern Organizations," 1961:5.

For some, growth and exercise of initiative may not be possible within the academies.

DOD in commenting on this role conflict, stated that:

> "Military experience has shown that a young officer's preacademy education and experience have not permitted him to develop the necessary judgment to cope with the kinds of anomalous situations that occur in combat. The simulated circumstances used in his professional development are essential in assisting him to respond to and cope with orders against his judgment in a predictable and professional manner, even though the significance of such orders is not fully understood or appreciated. The indiscriminate use of this technique is not condoned."

While some role conflict may be justified by this reasoning, one of the apparent effects of such conflict on certain types of individuals must be recognized--namely their leaving the academy.

We believe that each academy should try to isolate the specific nature of these conflicts and eliminate them if possible. Since the dropouts, more than the current students, felt this way, the academies need to include dropouts in their efforts to isolate the reasons.

The competitive environment

The academy environment is by design a highly competitive one. Richard C. U'Ren in his book "Ivory Fortress," describes the Military Academy's environment this way:

> "Candidates selected for West Point have already proved themselves to be academically, socially, and athletically competitive. West Point intensifies this competitiveness. In first-year math classes, for instance, men are graded and ranked every day, six days a week. Throughout every cadet's four years at the Academy, an evaluation of virtually every activity in which he participates is fed into a complex formula which determines his class ranking in 'the general order of merit.' High standing is important, since it determines a cadet's choice of service branch, his first assignment in the army, and his order of promotion in later years. 'Your order

> of merit follows you around forever,' a cadet remarked. Intramural athletics and intercollegiate sports are means par excellence of encouraging competition. The best company teams in each regiment are feted at regular intervals throughout the year, and pictures of the winning teams are posted on the walls of the cadet gym."

A number of studies conducted at the academies have shown that those who stay are more concerned with success; whereas those who leave are more concerned with establishing friendships. For instance, after intensive study of 246 voluntary dropouts an academy counselor concluded:

> "Essentially, the resignees as a group appeared to be largely non-competitive and not achievement oriented. Most resignees appeared to have much higher needs for affiliation, affection, and easy success than they had for achievement, personal accomplishment, and hard-fought success."

The individual concerned with success has been characterized by personality research as one who has a stronger motivation to achieve in terms of a standard of excellence than to avoid failure in terms of that standard. He also is more independent in his interpersonal relations, and he is better able to delay gratification; i.e., he tends to engage in activities which may not be satisfying in themselves but which lead to distant rewards. Finally, he prefers activities involving skill or competition to those involving chance or cooperation. On the other hand, those concerned with friendship have been characterized as needing to be loyal to friends, to participate in friendly groups, to do things for friends, to make as many friends as possible, to share things with friends, and to do things with friends rather than alone.

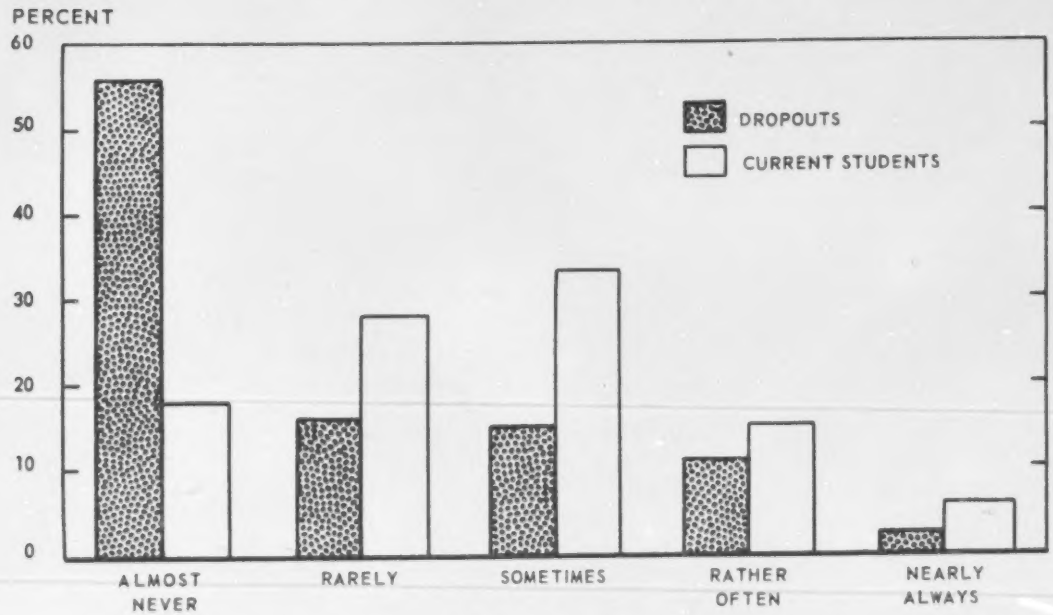
In an environment where students are ranked in terms of their grades and extraclassroom performance and the rank has particular significance in terms of job choice, where classes are frequently redistributed according to ability, where the standard of excellence is the "Long Grey Line" (or the equivalent) and its stalwart members, and where team captains and academic talent is the rule rather than the exception; in such an environment, it is perhaps not surprising that a strong drive for success is important to survival. Moreover, to the extent that one enters this environment feeling that friendships and group camaraderie are more important than displaying individual achievement, it is not surprising that the research shows these students to have a smaller chance of survival.

While our study did not directly measure the achievement drive or friendship needs of students, we did identify a number of factors in attrition which we believe reflect the importance of these individual differences.

At the Military Academy during the third-class year, those who stayed were less certain about their responsibilities and what officers or upperclassmen thought of their performance. (See chart 19.) Those striving to meet a standard of excellence need to know both what performance is required and how others evaluate this performance. Since dropouts were not bothered by this role ambiguity, we believe they were unconcerned with the achievement a competitive environment demands.

CHART 19

PERCENTAGE OF MILITARY ACADEMY THIRD CLASSMEN RESPONDING TO FREQUENCY WITH WHICH THEY FELT BOTHERED BY NOT KNOWING HOW THEIR PERFORMANCE WAS EVALUATED



Similarly, current students reported being bothered more frequently by having too little authority and responsibility delegated to them by academy officers and upperclassmen. Again, this observation is interpretable in the framework of current students' striving for achievement and dropouts' disregard for it.

Also, when leadership is defined as the extent to which both classmates and upperclassmen encourage each other to give their best effort and maintain high standards of performance, those who stay perceive more leadership in the environment than those who leave. Those who stay also see more leadership when it is defined as support and encouragement from upperclassmen--who are important in setting performance standards. On the other hand, when leadership is defined as support and encouragement from classmates, a definition which may be close to one of friendship, those who drop out see more of it in the environment. Therefore, emphasis on accomplishing tasks and lack of social support from those who set standards are two factors contributing to attrition in a competitive environment.

Research showing the noncompetitive individual's difficulty in the academy environment, personality research on high achievers, and our analyses which support this research lead us to conclude that the academies' intensely competitive atmosphere is an important factor in attrition.

We found little evidence that academies have done anything since our study to reduce competition--nor are we sure they should. Therefore, if the different perceptions of dropouts and current students about role ambiguity, sufficiency of responsibility, and leadership are due to differences in achievement motivation, these differences will continue to account for attrition. Moreover, changes such as one academy's ceasing to selectively enforce regulations with which current students disagreed are unlikely to reduce attrition, because they are not founded on the personality differences between those who stay and those who leave.

Alternatives for reducing attrition

A number of methods might reduce attrition due to these personality differences. One is to apply to those with low motivation one of the existing techniques to increase striving for achievement or feelings of control over environment. This alternative requires long and careful study to determine the benefits and costs. A more immediate alternative is to determine what "distractors" or "releasers" would be acceptable methods of reducing the pressures. (See p. 75.) One method recently instituted by the Air Force Academy is to give low-morale students special airmanship briefings and sailplane rides.

Another alternative is for the academies to reexamine the need for the intensity of competition in their environment. Can competition be reduced without sacrificing the purposes for which it was established? While we believe that some competition is beneficial and necessary, we are not convinced that its current intensity is justifiable. The academies should reexamine the degree of competition in the environment, consistent with their goal of developing a military or maritime officer.

DOD provided the following rationale for the military academies' competitive and stressful environments:

> "The present system is intended not only to test and evaluate the individual but also to establish predictable future performance patterns under conditions of stress. The academies provide a specially stressed environment where the cadet/midshipman's mistakes do not cost lives, equipment, or compromise national security. The competitive environment permits the individual to gain an appreciation for the personal, professional, and organizational impact of failure to meet assigned responsibilities. Upon commissioning he may be required to function in combat under the most extreme conditions of mental and physical stress where failure often costs lives. Adequate advance preparation should reduce the risk involved."

Although this argument carries weight, it may not justify the extent of stress and competition at the academies, which appears to be substantially greater than in the other officer training programs. DOD's argument suggests that (1) graduates of these officer training programs do not receive sufficient training of this type to establish predictable combat performance, (2) graduates of the academies are overexposed to stress and competition, or (3) entering academy students need more exposure to stress and competition than those who enter other programs.

Perceptions of control over environment

Over the past decade, considerable research has accumulated indicating that people differ in their perceived control over what happens to them in a particular environment. Those who believe they have some control over their environment are more knowledgeable about that environment and engage in more goal-directed activity than those who believe the environment is beyond their control. In addition, those who perceive control also have greater drives to achieve and

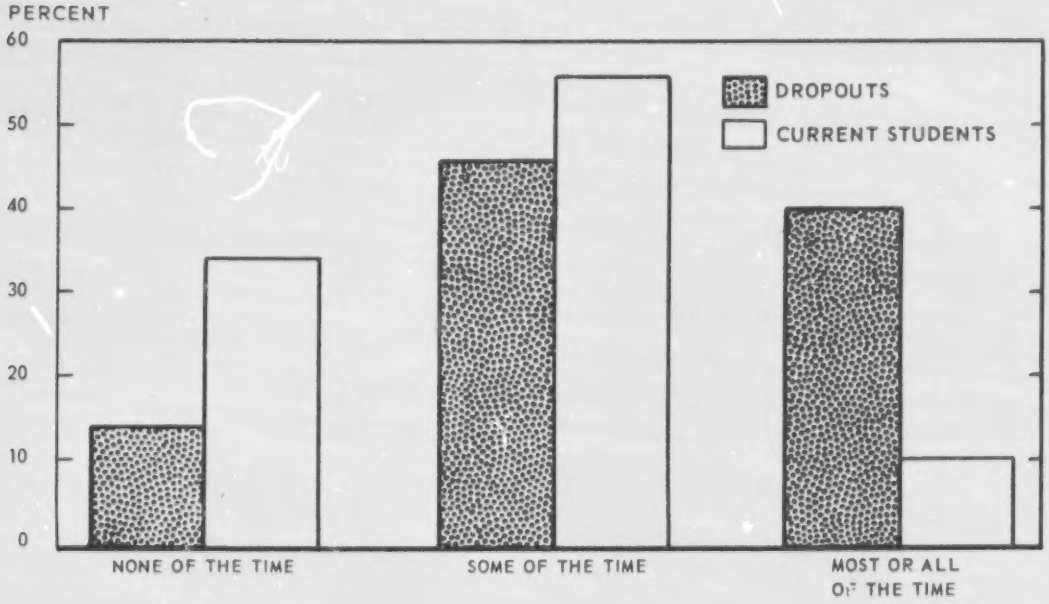
engage in more achievement-related behavior than those who perceive lack of control.

Some third-class attrition at the three military academies, and a substantial amount at the Coast Guard Academy (see chart 20), is attributable to a factor we term "rule uniformity and compliance." Dropouts more often than those who stayed reported that student regulations tended to be applied uniformly and complied with consistently; they also reported that disciplinary actions were consistent and appropriate for infraction of the regulations.

The Air Force Academy booklet for applicants describes the student's room as coming with "a hundred rules on how to keep it looking a certain way." The academies have rules and regulations for practically everything and explicit penalties for violating many of them. In recent years, rules and disciplinary actions at one academy completely filled two loose-leaf notebooks.

CHART 20

PERCENT OF COAST GUARD ACADEMY THIRD CLASSMEN RESPONDING TO FREQUENCY WITH WHICH RULES ARE APPLIED UNIFORMILY



Discussions with students revealed considerable latitude in applying and complying with the rules and to a lesser extent in the consistency of the disciplinary actions. More than one student told us that those who survive in such an environment learn to cut corners without getting caught; those who try to live totally within the regulations rarely make it through an academy.

As previously mentioned, those who believe they have some control over their environment are also more knowledgeable about that environment. With regard to circumventing rules, such knowledge would include perceiving variation in applying them and in disciplinary actions for violating them.

Additional third-class attrition at the Air Force and Naval Academies was accounted for by individual differences in control perception as indicated by responses to a factor we call "environmental influence." This factor was primarily made up of students' responses to questions about (1) satisfaction with control over their pay and opportunities for sleep and other free-time activities and (2) the reasonableness of coursework requirements and frequency of quizzes. The current students were more dissatisfied than the dropouts with all these environmental influence factors.

We believe that responses to the questionnaire items which make up the "environmental influence" factor show that some of those who stay at the academies are concerned with controlling their environment. They want some influence over what affects them at the academy--their pay, their opportunities for sleep, and their free-time activities. However, they are frustrated in their attempts at control by the demands of the academic program and of a system which controls their pay 1/. More importantly, we believe the responses indicate that at least some of the dropouts differ from current students in not being concerned with controlling their environment.

The method of withholding first-classmen's pay has been changed at one academy since our study was completed. These students now receive the amount that had formerly been withheld in August of their first-class year to provide for such

---

1/Traditionally, charges have been levied against student pay accounts for laundry and dry cleaning services. Additionally, money has been withheld--at one academy at least--to provide a lump sum distribution of pay at certain times during the year for automobile winterization and leave allowances for Thanksgiving, Christmas, and spring break.

things as laundry and dry cleaning, automobile winterization, and leave allowances. We agree with academy officials that this change may help prepare seniors to become commissioned officers and provide added incentive for the lower three classes to reach their first-class year. However, such changes are not likely to affect attrition of those who were satisfied with their control over pay and other aspects of the environment. Nor are they likely to affect attrition of those who see more uniformity in rule application and compliance. These changes fail to account for the subtle relationship between perceptions of the environment and personality differences in beliefs about ability to control that environment. Beliefs about environmental control will continue to account for some attrition as long as the environment continues to challenge rather than enhance self-confidence. Methods for reducing attrition related to beliefs about environmental control are the same as those for reducing attrition related to the competitive environment. (See p. 71.)

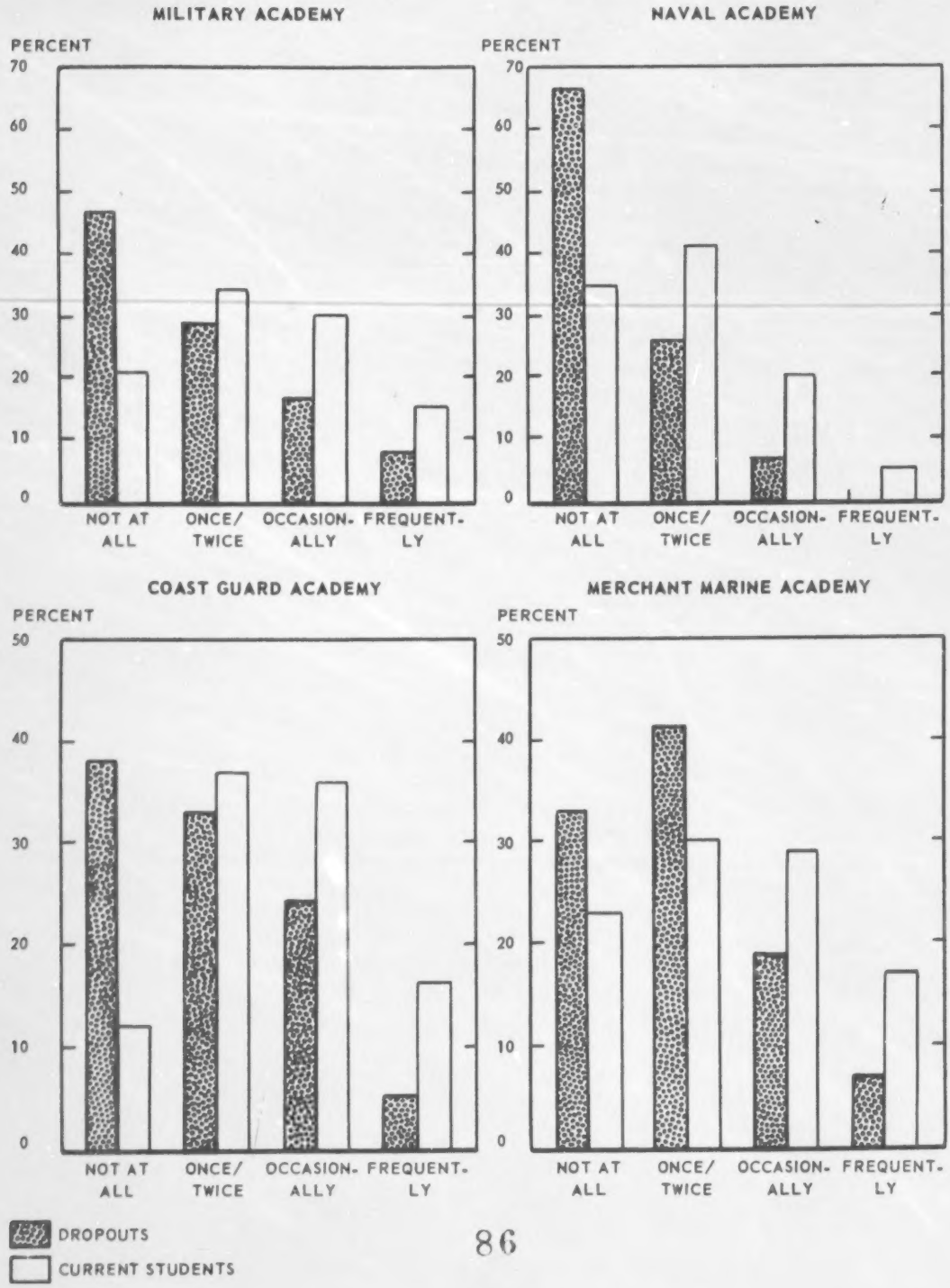
Nonparticipation in typical psychological releases

In an environment which is as demanding as that of the academies and which is populated with energetic young men who are frequently away from home for the first time, involvement in typical activities for diversion or distraction might be related to the likelihood of dropping out. In fact, an interaction factor consistently related to attrition during the fourth-class-academic and third-class years at a number of academies is one we call "typical college activities." It relates to both classroom and extracurricular activities typically engaged in by college students. This factor was measured by questions about the frequency of a large number of such activities. Analysis of those responses indicated that, during the fourth-class academic year at all but the Air Force Academy, those who stayed were more frequently involved in such activities as dating (see chart 21) and arranging dates, playing pranks, coming late to class or openly disagreeing with an instructor, and drinking alcoholic beverages. At the academies where this factor is also important in the third-class year, engaging in these same activities--plus visiting a nearby city, skipping class, or visiting a faculty or officer's home--was also related to retention.

All of these activities share the common characteristics of providing self-initiated psychological release or diversion from everyday academy activities. Our data suggest that students who can't or won't participate in these distracting or releasing activities have less chance of remaining at the academy. This relationship may be due both to the buildup

CHART 21

FREQUENCY OF FOURTH CLASS DATING



of psychological tensions and to social isolation from not participating in the activities of other students.

The academies should attempt to identify what type of student-initiated "distractors" or "releasers" might be made available to these students which would serve to release the psychological tension created by the environment.

External factors

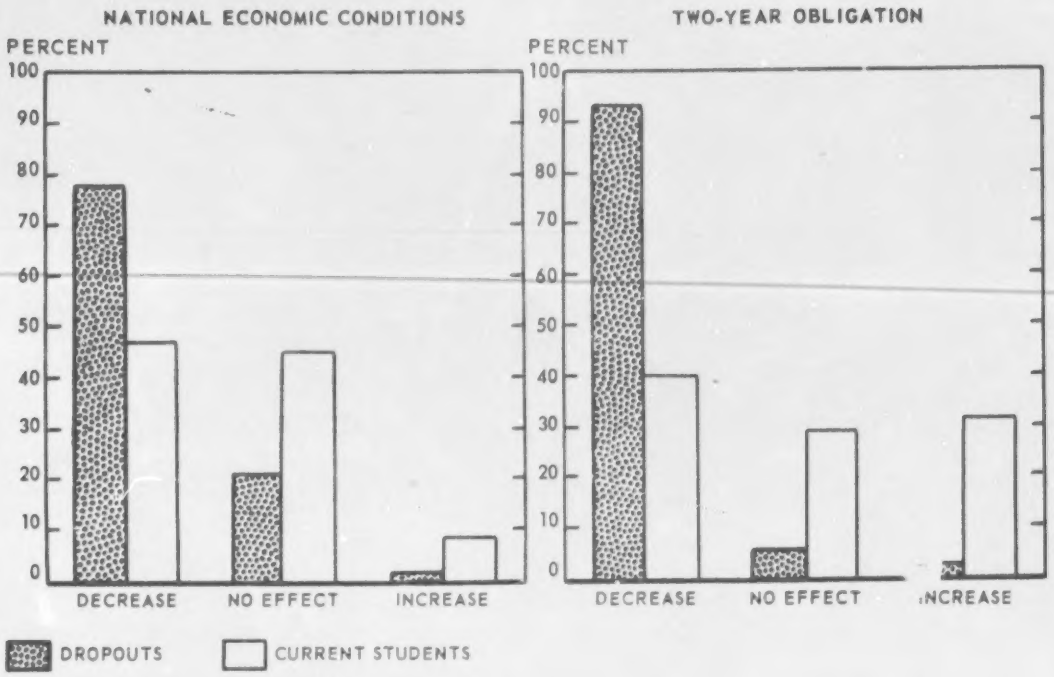
Factors external to the academy environment and to the students' characteristics were related to first-summer and fourth-class-academic-year attrition at the Merchant Marine Academy and to third-class-year attrition at the Air Force and Coast Guard Academies. However, they related to attrition by themselves only at the Air Force Academy. At the Merchant Marine and Coast Guard Academies, external factors were combined with student characteristics or academy environment factors when related to attrition. For example, first-summer dropouts at the Merchant Marine Academy reported that national economic conditions decreased their desire to stay at the Academy. However, these dropouts also reported that their desire to leave was increased by changing opportunities for graduate school and maritime careers, as well as greater familiarity with the maritime service. They also reported more inaccurate expectations about the physical education training program. Fourth-class dropouts similarily affected by these opportunities and external conditions were more likely to report that the frequency of challenges to their ability, as well as greater familiarity with the maritime service, also increased their desire to leave.

Third-class dropouts at the Coast Guard Academy reported that their desire to leave was increased by a 2-year enlisted-service obligation incurred by second- or first-class dropouts. They also held high opinions of their own academic abilities--they reported high mathematical and academic abilities and intellectual self-confidence at the time they entered the Academy. Third-class dropouts also reported that national economic conditions encouraged them to leave and that tuition-free education and long term financial security were relatively unimportant in their decisions to attend the Academy.

A substantial amount of third-class attrition at the Air Force Academy--as can be seen in chart 22--is related to the adverse affect of national economic conditions on the dropouts' desire to stay, and of the 2-year enlisted-service obligation if they dropped out in their last 2 years. No student characteristics or academy environmental factors we measured were related to these factors.

CHART 22

EFFECT OF EXTERNAL FACTORS ON DESIRE TO STAY ON AIR FORCE ACADEMY THIRD CLASSMEN



Questions about external factors were included in our study to obtain some idea of how much attrition was due to factors beyond the academies' control. Our analysis suggests, however, that the academies may, in fact, be able to do something about the attrition due to these external factors by examining the characteristics--and their reactions to the academy environment--of those students whose motivation to stay is decreased by these factors. For example, more accurate expectations by students entering the Merchant Marine Academy might reduce the impact of national economic conditions and changing maritime career opportunities. A research study of characteristics different from the ones we investigated might identify additional attributes. Such a study should be part of the Academy's future research efforts.

Other factors

At the Merchant Marine Academy, a large number of student characteristic factors collectively explain much first-summer and fourth-class-academic-year attrition. The reason for all the small factors may be that while the other academies, through their admission criteria and large pool of qualified applicants, have been able to select those whom their research has shown to have greater potential to graduate, the Merchant Marine Academy has not been able to be selective; its pool of applicants has been decreasing.

For the classes of 1969 through 1977, nominations have fallen by more than 25 percent and qualified candidates dropped by about 44 percent. Yet the number of students admitted each year has remained fairly constant. In effect, the Academy is selecting its students from a smaller, less academically qualified pool. Yet, our analysis shows that those who are lower in terms of academic achievement and mathematical abilities have higher dropout rates.

The Academy should, therefore, be able to reduce its attrition rate by increasing its recruiting efforts to attract a larger pool of applicants.

- - - -

During the third-class year, the Naval and Coast Guard Academies have more attrition due to student characteristics than the Air Force and Military Academies. Further, as shown in chart 2 (p. 11) both the Coast Guard and Naval Academies have greater overall third-class attrition. Possibly, these academies encourage those who are academically deficient or do not fit into the environment to stay longer. Further, at the Naval Academy, the class analyzed had the greatest diversity of academic qualifications among the last nine entering Naval Academy classes.

This later attrition increases the cost to the Government. However, we are not suggesting that the academies quickly get rid of students who do not initially fit. Students who are retained longer may improve their performance or adjust to the environment, thereby converting a potential dropout into a graduate. As previously mentioned, the Coast Guard Academy is testing this delaying approach.

CHAPTER 5

SUMMARY OF OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Every institution must, from time to time, critically examine its policies and practices and their continuing contribution to its goals. We live in a changing world, and what was once sound may no longer be appropriate. To use tradition as the basis for a practice or policy is to ignore the inevitability of change.

In this report we have identified and presented the more important factors influencing student attrition and made specific recommendations for reducing attrition. We have also identified areas requiring further examination and analysis by the academies or others.

If there is one impression that emerged from our study, it is that an understanding of what motivates people to continue in or drop out of an organization is not a simple issue with clear-cut answers. Rather, the issue is complex and understanding it requires long and methodical study. We view our study as another step toward understanding the attrition phenomenon. We believe that we have narrowed significantly the possible causes of student attrition at the academies, and we encourage the academies to use our data and conclusions as a focal point for further needed study.

A major focus of such an examination should be the fourth-class system--the process during the student's first year by which the academies attempt to develop in him "discipline, devotion to duty, and loyalty to his country." It involves learning "self-discipline, instantaneous obedience to orders," attention to detail, punctuality, and the fundamentals of military life and knowledge." Many of the factors contributing to attrition are a part of that system. Particular emphasis should be given to whether the practices of the fourth-class system motivate a student to complete his training at the academy and pursue a service career. Many students entering the academies are not fully committed to a military career; low commitment is typical of individuals at their age. Yet, some of the academies' practices seem to discourage these students. The academies should identify the aspects of the fourth-class system which are demotivational and change them. The students' early academy experiences should be designed to develop motivation, not just test it.

Specifically, the academies should reexamine their heavy emphasis on competition and stress. The need for the emphasis on learning professional and nonprofessional knowledge should be reviewed. The feeling of many students that they had to do things which were against their judgment also warrants immediate attention; the academies need to identify what those things are and modify them. The academies should identify "distractors" or "releasers" which would reduce the pressures on students that the competitive environment creates. Finally, the academies should study the feasibility of instituting, for those lacking motivation, techniques to increase striving or feelings of competence in environmental control.

In addition to identifying the aspects of the academy environment which decrease commitment, the academies should attempt to identify, in the first days of summer training, students with low commitment and provide them with counseling which might encourage them to stay. Also, the services, through their personnel research organizations, should develop validated instruments for measuring commitment before entry.

Finally, the academies should consider gradually building up obligation during the first 2 years, rather than forcing a decision at the beginning of the second-class year. This buildup could be achieved through a system where attendance at the academy becomes a financial obligation to the Government if the student does not complete the program. This system is similar to the proposed conversion of Reserve Officers Training Corps scholarships to loans for those who drop out of that program.

Students' perceptions of the academic program also deserve concentrated attention. One of the most important reasons that students enter the service academies is the high reputation of their academic programs. Yet, students' views of the academic program contribute significantly to their levels of satisfaction and attrition. Features of the academic program which deserve particular attention are (1) the overall quality of academic instruction, (2) the variety of courses and technical emphasis, and (3) opportunities to major in, concentrate in, or take subjects of interest.

Some students apparently did not recognize at the time they entered the limited majors available and the technical emphasis. While a number of academies have made efforts to "tell it like it is," these efforts need to be intensified with respect to the academic program. All academies

should intensify its communication with qualified applicants to apprise them of the nature of the academic offerings and to ascertain their academic-major preferences and career aspirations. Qualified applicants should be told if their preference of majors is at variance with the academic offerings or if their career aspirations are unlikely to be satisfied in the service. The academies should consider using more end-of-course critiques to obtain students' views of the academic programs and identify aspects of those programs which create unusual dissatisfaction. Such an expression of the academies' interest should improve students' perceptions of control over environment, as well as of instructional quality.

Students entering the academies are, academically, a highly qualified group. Yet, many are separated by the academies for academic reasons. A number of academies have recently tried to give academically deficient students more opportunities for individualized instruction. Their efforts include (1) delaying academic attrition to allow students to make up deficiencies, (2) instituting a summer school program to reduce course overloads and allow students to make up academic deficiencies, and (3) reducing course lesson loads. All academies should monitor these changes and adopt those which prove effective. Reducing the emphasis on professional and nonprofessional knowledge could increase the time available for academics.

The finding that a large percentage of entering students are not highly committed to a service career is consistent with much of the research on vocational choice. Further, many are dissatisfied with the restrictive environment at the academies--both academically and militarily--and the limited opportunity for changing direction or trying alternatives. Because changing vocational choice will necessitate changing schools if the new choice is not available at the academy, some attrition probably will always be caused by such shifts in preference. Nevertheless, the academies' narrow curriculum does not accommodate students' tendency to change their fields. Second-class academy students are faced with a narrow choice of vocations, and they are required to commit up to 7 years of their lives (2 in the academy and 5 on active duty) to a specific military organization --at an age when people are characteristically indecisive about their long term career goals. The academies should examine the practicality of allowing students to switch majors more easily.

The influence of the Superintendent and his top staff, notably the Commandant, on student attitudes and attrition cannot be overemphasized. A principal reason for the increase

in Air Force Academy attrition during academic years 1970-71 and 1971-72 appears to have been a change in policy and philosophy toward student retention resulting from a change in Superintendents. In the selection of officials for top academy positions, the Secretaries of the Departments and the services should carefully consider the attitudes and philosophies of potential candidates.

Most attrition studies performed by or for the academies in recent years have concentrated on the characteristics of the students. The attributes of those who succeed (i.e., the graduates) are used as the criteria for selecting new students. We are concerned about this emphasis on selection control versus environmental adaptation for two reasons:

--It tends to result in a homogeneous student body.

--It ignores the influence of the academy environment on attrition.

The academies' research efforts should be more balanced in scope. There should be more emphasis on evaluating, on a longitudinal basis, the impact of the academy environment on attrition, especially as it interacts with student characteristics to cause attrition. To avoid duplication of research effort, obtain the benefits of multiacademy studies, and overcome any reluctance of the academies to change tradition, the Office of the Secretary of Defense should, in cooperation with the academies and with the services' personnel research organizations, develop, adopt, and monitor an overall program for longitudinal research. This research program should periodically examine in depth not only the academy environment's effects on attrition but also the relevance of the academies' policies and practices to the changing requirements for career military officers. Representatives from the Coast Guard and Merchant Marine Academies should participate in the program and benefit from the research efforts.

Attrition also causes inefficient use of existing facilities and increases the costs of an academy graduate. While to some extent this condition is unavoidable, one method to increase capacity use of facilities and reduce the cost per graduate is to increase entering classes to offset the attrition expected during the first summer.

RECAP OF RECOMMENDATIONS

Based on the results of our study presented here and in supporting enclosures, we recommend that:

--The Secretaries of Commerce, Defense, and Transportation, and the services carefully consider the attitudes and philosophies of potential candidates for top academy positions, and particularly the candidates' ability to use the academy's unique environment to motivate young men and women to a service career. (See pp. 17 and 18.)

--The Secretaries of Commerce, Defense, and Transportation direct the service academies to

  --increase entering academy classes to offset the attrition expected during the first summer (subject, of course, to legal strength limitations and the availability of qualified applicants) (see p. 24) and

  --increase research emphasis on evaluating the academy environment's impact over time on attrition and especially its interaction with student characteristics. (See pp. 40 and 41.)

--The Secretary of Defense, in cooperation with the academies and the services' personnel research organizations, develop, adopt and monitor an overall program for research over time which will provide for indepth examination of the effects of the academy environment on attrition and the continued relevance of the academies' policies and practices to the development of career military officers. (See p. 41.)

--The Secretaries of Commerce, Defense, and Transportation direct the academies to

  --increase their efforts to "tell it like it is" to prospective students (see p. 48),

  --consider methods to identify in the first days of summer, students with low commitment and to provide these students with counseling which might encourage them to stay (see pp. 48 and 49),

  --increase efforts to critically examine their policies and practices in terms of how they contribute to developing motivated career officers (see p. 49),

--monitor closely the recent Coast Guard Academy policy change which delays academic separation to give students a chance to improve in deficient areas (see p. 50), and

--reexamine the emphasis placed on learning professional and particularily nonprofessional "knowledge" and eliminate that which is unnecessary. (See p. 57.)

--The Secretary of Defense direct the Military Academy to reexamine the need for the current level of drills and ceremonies. (See p. 57.)

--The Secretaries of Commerce, Defense, and Transportation direct the academies to

--consider methods, including making attendance at the academies a financial obligation for dropouts, to gradually build up commitment rather than force a decision to stay or leave at the beginning of the second-class academic year (see p. 63),

--intensify communication with each qualified applicant to determine whether the major and career he prefers are available in the academy and service he is considering (see p. 63),

--share the results of efforts by the academies to give academically deficient students more opportunity for individualized instruction (see p. 64),

--consider using more end-of-course critiques to improve students' perceptions of (1) the quality of academic instruction and (2) control over their environment (see p. 64),

--study the feasibility of allowing students to switch majors or areas of concentration more easily (see p. 64),

--identify and assess aspects of the academy environment which contribute to student role-conflict (see p. 68),

--consider instituting, for students with low motivation, techniques to increase achievement striving or feelings of competence in environmental control (see p. 71),

--identify "distractors" or "releasers" to reduce the pressures created by the competitive environment (see p. 71), and

--reevaluate the intense competition at the academies. (See p. 72.)

--The Secretary of Commerce direct the Merchant Marine Academy to consider increasing its recruiting efforts, to attract a larger pool of applicants from which to find the most qualified. (See p. 79.)

AGENCY COMMENTS

The Department of Transportation generally agreed with our recommendations and indicated that action has been planned or taken on most of them.

Department of Commerce officials had no specific comments on our recommendations. They stated, however, that they will maximize their use of the relevant experiences of the Defense academies while conducting their own reviews.

DOD was in basic agreement with most of our recommendations. It indicated that action has already been taken on two of them and the others would be studied in more detail.

The comments of the three Departments are included as appendixes I through III.

DOD also attached the comments of each of the military services and academies. These comments have been incorporated where appropriate. Many of the services' comments detailed actions that specific academies have planned or taken on many of our recommendations.

APPENDIX I

OFFICE OF THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

ASSISTANT SECRETARY
FOR ADMINISTRATION

December 2, 1975

Mr. Henry Eschwege
Director
Resources and Economic Development
Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Eschwege:

This is in response to your letter of October 28, 1975, requesting the Department of Transportation's comments on the General Accounting Office's (GAO) draft report on student attrition at the five Federal service academies. This report, which is the third of a series of GAO reports on the Federal service academies, concludes that attrition rates at academies have reached record levels. Further attrition results in (1) the loss of some potentially good military officers, (2) inefficient use of existing facilities, and (3) increases in the costs of producing a graduate. GAO cites a number of contributing factors to student attrition at the academies. Some of these factors are low level commitments, incompatibility with the military environment, and overemphasis on professional and nonprofessional knowledge. GAO makes several recommendations which it believes the Secretaries of the services should implement.

The Department generally agrees with the recommendations, and they are individually addressed in the enclosed reply. I have enclosed two copies of the Department's reply.

Sincerely,

William S. Heffelfinger

Enclosure
(two copies)

DEPARTMENT OF TRANSPORTATION
STATEMENT OF GAO REPORT

I. TITLE: Student Attrition at the Five Federal Service Academies draft report

II. GAO RECOMMENDATIONS:

a. Increase entering class size to offset attrition expected during the first summer.

[See GAO note.]

c. Direct research effort to study the impact of the Academy environment and its interaction with student characteristics on attrition.

d. Increase efforts to "tell it like it is" to prospective cadets.

e. Examine policies and practices in terms of how they contribute to developing motivated career officers.

f. Examine the need for learning professional and non-professional types of knowledge with a view toward decreasing or eliminating that which is not necessary.

[See GAO note.]

h. Consider methods for a more gradual build-up of commitment rather than forcing a "go/no-go" decision at the beginning of the second class academic year.

i. Study the benefits of a system where attendance at the Academy turns into a financial obligation on the part of those students not completing the program rather than requiring active enlisted military service as at present.

(1) Intensify efforts in communication with qualified applicants to make sure they are aware of academic offerings and to ascertain their academic preferences and career aspirations, and

(2) Notify applicants when their academic preferences or career aspirations are not likely to be satisfied by the Academy or in the Coast Guard.

k. Share the results of efforts to provide more opportunity for academically deficient students to seek or be offered more individualized instruction.

GAO note: Sections that deal with matters no longer in this report have been omitted.

APPENDIX I

l. Consider use of end-of-course critiques to improve the quality of academic instruction and to improve student perception of some control over their environment.

m. Study the feasibility of allowing students to switch majors more easily.

n. Identify aspects of the academy environment which contribute to student role conflict and assess their worth.

o. Study the feasibility of instituting one of the existing techniques designed to increase achievement striving or feelings of competence in environmental control.

p. Identify what distractions or releases would be acceptable methods of reducing the pressures created by competitive environment.

q. Examine the need for the intensity of competition at the academies with a view toward reducing the overall level.

III. DOT COMMENTS ON FINDINGS AND RECOMMENDATIONS:

a. Increase entering class size. Concur. The initial input to the Coast Guard Academy has historically been increased to accommodate the attrition expected in the first summer. We shall continue to use this strategy.

[See GAO note, p. 88.]

c. Study the impact of the Academy environment. Concur. Research efforts will be directed to this area.

d. Increase efforts to "tell it like it is." This has been our objective and any efforts in this regard will be intensified.

e. Provide counselling to those students whose commitment is waivering. Concur. The element of this recommendation to which our major effort will be directed is the early identification of those cadets evidencing lack of commitment or loss of motivation. Our current system provides for counselling of cadets who are so identified incidental to some other evaluation, i.e., academic, aptitude, etc.

f. Examine policy and practicies as to how they contribute to developing motivated career officers. Concur.

g. Examine the need for learning of professional and non-professional knowledge. Concur.

h. Consider methods for a more gradual build-up of commitment. Concur. Alternative approaches which will allow recoupment of the Government investment will be studied.

i. Study benefits of a financial rather than active service obligation for disenrollees. Concur. This recommendation ties in very closely to the preceding one. Alternatives will be studied.

j. Intensify efforts for two-way communication. Concur. This will be done in conjunction with the effort to "tell it like it is."

k. Share the results of efforts to provide opportunity for academically deficient students. Concur. Our efforts in the area will continue.

l. Consider greater use of end-of-course critiques. This recommendation will be studied very carefully. The very nature of a military academy mitigates against establishing policies and practices based upon concurrence and consensus of the student population. Institution of a critique system which does not result in changes, or which the critiquing population does not perceive as resulting in changes, is hypocritical and would result in the perception of even less environmental control. Critiques can prove valuable in evaluation of the quality and methods of instruction and can contribute to positive changes. The many factors bearing upon this recommendation will be reviewed and given careful study and consideration.

m. Study the feasibility of allowing students to switch majors more easily. Concur. This recommendation will be implemented to the extent possible within the framework of the desirability of having approximately 80% of the graduates complete quantitative majors, as well as facilities and staff available to each major area of concentration.

n. Identify aspects of the Academy environment which contribute to student role conflict. Concur.

o. Study feasiblity of instituting existing techniques to increase achievement striving or feelings of competence in environmental control. Concur.

p. Identify what "distractors" or "releases" would be acceptable methods of reducing pressures created by competitive environment. Concur.

q. Examine the need for the intensity of the competition. Concur.

IV. STATUS OF CORRECTIVE ACTION:

a. Except as noted in the responses to the individual recommendations, no corrective action has been initiated, principally due to the recent receipt of the draft report. No target date for completion of action on all recommendations can be set at this time due to the esoteric nature of the undertakings.

R. H. SCARBOROUGH

APPENDIX II

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Maritime Affairs
Washington, D.C. 20230

DEC. 9, 1975

Mr. Victor L. Lowe
Director
General Government Division
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Lowe:

This will acknowledge receipt of your letters and enclosures of October 28, 1975, to the Secretary of Commerce and to me, requesting our comments on the draft report entitled "Student Attrition at the Five Federal Service Academies".

The report covers extensively many areas concerned with the recruitment, selection, indoctrination, motivation, education and training of midshipmen at the U.S. Merchant Marine Academy in addition to the Army, Navy, Air Force and Coast Guard Academies. As you are aware from other recent GAO studies of the Service Academies the federal resources dedicated to the U.S. Merchant Marine Academy are substantially less than are available to any other of the federal academies whether measured by total appropriation or on a per student basis. Most of the recommendations contained in the draft report are linked to the performance of detailed research and psychological impact reviews to determine specific cause-effect relationships between elements in the Academy environment, including the recruitment and appointment process, and the rate of attrition in the student body. As the smallest of the federally-operated academies, with limited resources, we will maximize our use of the experiences of the Armed Forces Academies in parallel areas of concern while conducting our own in-house review of elements of the study specifically related to the U.S. Merchant Marine Academy.

Sincerely,

Robert J. Blackwell

ROBERT J. BLACKWELL
Assistant Secretary
for Maritime Affairs

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APPENDIX III

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

MANPOWER AND
RESERVE AFFAIRS

22 JAN 1976

Mr. Hyman L. Krieger
Director, Federal, Personnel and
Compensation Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Krieger:

On behalf of the Secretary of Defense we have reviewed the GAO Draft Report, "Student Attrition at the Five Federal Service Academies," (OSD Case 4196).

The report represents a new methodology on the part of the GAO to investigate a given area of activity within the government and to draw some conclusions which would be useful to the Congress, the Department of Defense and other interested parties. It is a responsible effort to address a very complex issue.

Preliminary comments concerning factual accuracy, study techniques, tone and wording were provided at meetings recently held between GAO officials, the DoD, Military Services, and Academy officials. The detailed comments of the Services on the draft report are attached for your information and consideration. We are in agreement with their general concern about the importance of a balanced presentation and the need to include adequate cautions about the complexities of analyzing attrition and the problems of correlation and determination of causal relationships. The reader should have a clear understanding of the specific missions of the academies while identifying the distinction between student perceptions and the realities that exist at the academies. The following general observations are submitted for consideration:

1. The draft report includes a range of considerations, caveats and cautions for the reader. They are, in our opinion, key to the proper evaluation and interpretation of the conclusions and recommendations.

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

APPENDIX III

It would assist the layman if these cautions were provided in the digest of the report and repeated at applicable points throughout the report; for example, the caution contained in the first paragraph of Chapter 6 to Enclosure A, pages 121-122, that correlation does not mean causation, etc. should be included in the digest. Additionally, the digest should contain a caution that in making comparisons based on common factors between academies and, within one academy, between classes, the factor scores used in the report do not represent objective evidence but are based on opinions and attitudes expressed by cadets, graduates, and dropouts in answering a survey questionnaire. Other useful examples exist in the report.

2. The attrition discussion in the body of the report and in the recommendations generalizes that attrition is counterproductive and specifies that attrition resulting from excessive competition and stress is wasteful. The inclusion of a paragraph on the Service's rationale for using the competitive and stressful environment would provide the reader with a balanced perception and understanding of the need. For example:

> "The present system is intended not only to test and evaluate the individual but also to establish predictable future performance patterns under conditions of stress. The academies provide a specially stressed environment where the cadet/midshipman's mistakes do not cost lives, equipment, or compromise national security. The competitive environment permits the individual to gain an appreciation for the personal, professional, and organizational impact of failure to meet assigned responsibilities. Upon commissioning he may be required to function in combat under the most extreme conditions of mental and physical stress where failure often costs lives. Adequate advance preparation should reduce the risk involved."

3. The report comments on those training and indoctrination situations in which the individual may be required to "act against his judgment" as deleterious to individual motivation and professional development. The addition of a background paragraph to provide the reader with an explanation of the military basis for the need would increase understanding of the phenomenon. For example:

> "Military experience has shown that a young officer's preacademy education and experience have not permitted him to develop the necessary judgment to cope with the kinds of anomalous situations that occur in combat. The simulated circumstances used in his professional development are essential in assisting him to respond to and cope with orders against his judgment in a predictable and professional manner,

APPENDIX III

even though the significance of such orders is not fully understood or appreciated. The indiscriminate use of this technique is not condoned."

4. We agree that the Commandants and Superintendents of the academies have significant impact on their institutions and cadets/midshipmen. The importance of their role and the effect of their personalities on attrition as well as the effect of their differences in personal and professional philosophies may not be fully understood by the layman. The language should be modified to reduce unintended inferences. A clear statement at the beginning of the discussion about the Air Force Academy (page 20) could be included which indicates that criticism of either Air Force Commandant is not the intention. For example, the GAO comment on page 26, "This is not to say that we believe that one philosophy is better than another; we have not studied extensively the implications of each," if included in the introductory discussion on page 22 of the report, would improve the reader's understanding of the purpose and intent for using the examples.

In regard to the specific recommendations contained on pages 144 thru 148 of the draft report, we are in agreement that they are worthy of further examination and evaluation. Some of the recommendations concern areas of interest to the DoD Committee on Excellence in Education and therefore are currently being reviewed by the Services for later presentation to the Committee for decision during the remainder of FY 1976.

Action has been completed on two recommendations:

GAO Recommendation: On page 144..."The Secretaries of the Services and the DoD Committee on Excellence in Education, in their deliberations and selection of senior executives for the Service Academies, should give appropriate recognition to the attitudes and philosophy of potential candidates, particularly in the candidate's ability to use the unique environment of the academy to properly motivate young men and women to a career in the Service."

Comment: The Committee developed and implemented a new DoD policy with supporting procedures to insure selection of senior executives attuned to the unique demands of the Academy environment.

GAO Recommendation: On page 146..."The Military Academy should reexamine the need for the current level of drills and ceremonies."

Comment: The Military Academy has reduced the level of drills and ceremonies by 35% for the fall semester 1975. The review is continuing and further reductions are anticipated in the spring of 1976.

There are two recommendations with which we have some concern:

[See GAO note, p. 88.]

GAO Recommendation: On page -- "Develop an overall program for longitudinal research on the effects of the Academy environments on attrition and the appropriateness of the academies' policies and practices to the changing requirements for career military officers."

Comment: We agree that a coordinated, organized and continuing research effort is required in both areas. Since longitudinal studies will cost more and take longer, it may be more economical to use the approach and instruments developed in your study as a basis for obtaining a better understanding of the attrition problem over time. If attrition returns to something approximating historical norms in the next three years, extensive longitudinal studies might not be worth the cost (e.g., Air Force estimates an original effort would take 18 months to develop and validate the methodology at a cost of $200,000.)

The remainder of the recommendations must be examined in more detail by the Department of Defense to determine their feasibility vs. their cost/benefit relationship to the projected program improvements.

I have asked my staff to insure your office is informed regarding the progress of studies and other actions which the Services and OSD staffs may take as a result of your recommendations.

Sincerely,

John F. Ahearne
Principal Deputy

PRINCIPAL OFFICIALS RESPONSIBLE FOR ADMINISTERING ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
DOD		
SECRETARY OF DEFENSE:		
Donald H. Rumsfeld	Nov. 1975	Present
James R. Schlesinger	July 1973	Nov. 1975
William P. Clements (acting)	May 1973	July 1973
DEPUTY SECRETARY OF DEFENSE:		
William P. Clements	Jan. 1973	Present
ASSISTANT SECRETARY OF DEFENSE (MANPOWER AND RESERVE AFFAIRS):		
William K. Brehm	Sept. 1973	Present
Carl W. Clewlow (acting)	June 1973	Aug. 1973
DEPARTMENT OF THE ARMY		
SECRETARY OF THE ARMY:		
Martin R. Hoffmann	Aug. 1975	Present
Norman R. Augustine (acting)	July 1975	Aug. 1975
Howard H. Callaway	May 1973	July 1975
ASSISTANT SECRETARY OF THE ARMY (MANPOWER AND RESERVE AFFAIRS):		
Donald G. Brotzman	Mar. 1975	Present
M. David Lowe	Feb. 1974	Jan. 1975
Carl S. Wallace	Mar. 1973	Jan. 1974
CHIEF OF STAFF:		
Gen. Fred C. Weyand	Sept. 1974	Present
Gen. Creighton W. Abrams	Oct. 1972	Sept. 1974
SUPERINTENDENT OF THE MILITARY ACADEMY:		
Lt. Gen. Sidney B. Berry	July 1974	Present
Lt. Gen. William A. Knowlton	Mar. 1970	July 1974

APPENDIX IV

	Tenure of office	
	From	To
DEPARTMENT OF THE NAVY		
SECRETARY OF THE NAVY:		
J. William Middendorf II	Apr. 1974	Present
John W. Warner	May 1972	Apr. 1974
ASSISTANT SECRETARY OF THE NAVY (MANPOWER AND RESERVE AFFAIRS):		
Joseph T. McCullen, Jr.	Sept. 1973	Present
James E. Johnson	June 1971	Sept. 1973
CHIEF OF NAVAL OPERATIONS:		
Adm. James L. Holloway III	July 1974	Present
Adm. Elmo R. Zumwalt, Jr.	July 1970	July 1974
SUPERINTENDENT OF THE NAVAL ACADEMY:		
Rear Adm. Kinnaird R. McKee	Aug. 1975	Present
Vice Adm. William P. Mack	June 1972	July 1975
DEPARTMENT OF THE AIR FORCE		
SECRETARY OF THE AIR FORCE:		
Thomas C. Reed	Dec. 1975	Present
John L. McLucas	May 1973	Dec. 1975
ASSISTANT SECRETARY OF THE AIR FORCE (MANPOWER AND RESERVE AFFAIRS):		
David P. Taylor	June 1974	Present
James P. Goode (acting)	June 1973	June 1974
CHIEF OF STAFF:		
Gen. David Jones	Aug. 1974	Present
Gen. George S. Brown	Aug. 1973	July 1974
Gen. John D. Ryan	Aug. 1969	Aug. 1973
SUPERINTENDENT OF THE AIR FORCE ACADEMY:		
Lt. Gen. James R. Allen	Aug. 1974	Present
Lt. Gen. Albert P. Clark	Aug. 1970	July 1974
DEPARTMENT OF TRANSPORTATION		
SECRETARY OF TRANSPORTATION:		
William T. Coleman, Jr.	Mar. 1975	Present
Claude S. Brinegar	Feb. 1973	Mar. 1975

	Tenure of office	
	From	To
UNITED STATES COAST GUARD		
COMMANDANT:		
Adm. Owen W. Siler	June 1974	Present
Adm. Chester R. Bender	June 1970	May 1974
SUPERINTENDENT OF THE COAST GUARD ACADEMY:		
Rear Adm. William A. Jenkins	June 1974	Present
Rear Adm. John J. McClelland	July 1973	June 1974
Rear Adm. John F. Thompson	June 1970	July 1973
DEPARTMENT OF COMMERCE		
SECRETARY OF COMMERCE:		
Elliot L. Richardson	Feb. 1976	Present
Rogers C. B. Morton	May 1975	Feb. 1976
Frederick B. Dent	Feb. 1973	Apr. 1975
Peter G. Peterson	Feb. 1972	Jan. 1973
Maurice H. Stans	Jan. 1969	Feb. 1972
ASSISTANT SECRETARY FOR MARITIME AFFAIRS/MARITIME ADMINISTRATOR:		
Robert J. Blackwell	July 1972	Present
Andrew E. Gibson	Feb. 1969	July 1972
SUPERINTENDENT OF THE MERCHANT MARINE ACADEMY:		
Rear Adm. Arthur B. Engel (Ret.)	July 1970	Present

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